AERMEC

air conditioning

60Hz R410A RS485

Technical Manual

NXW

- WATER COOLED CHILLER AND HEAT PUMP
- INDOOR UNITS
- SCROLL COMPRESSORS

EN

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Dear customer,
Thank you for choosing AERMEC. It is the fruit of many years of experience and special design studies and has been made of the highest grade materials and with cutting edge technology.
The quality level is being constantly monitored, so AERMEC products are synonymous with Safety, Quality and Reliability.

The data may undergo modifications considered necessary for the improvement of the product, at any time and without the obligation for any notice thereof.

Thank you again.
AERMEC S.p.A

AERMEC S.p.A. reserves the right at all times to make any modification for the improvement of its product and is not obliged to add these modification to machines of previous manufacture that have already been delivered or are being built.

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Standards and directives to be followed in the design and manufacture of the unit:

STANDARD
1. UL 1995 Heating and cooling equipment
2. ANSI/NFPA Standard 70 National Electrical code (N.E.C.)
3. CSA C.22.1.- C.22.2 Safety Standard Electrical Installation

SAFETY LEVEL
1. IP24

ACOUSTIC PART
1. ISO DIS 9614/2 (sound intensity method)

REFRIGERANT GAS (R410A)
This unit contains fluorinated greenhouse gases covered by the Kyoto Protocol. Maintenance and disposal operations must be only carried out by qualified staff, in compliance with existing laws.

1. GENERAL WARNINGS

NXW AERMEC is built according to recognised technical standards and safety regulations. They have been designed for air conditioning and hot water production and must be used for this purpose in accordance with their performance characteristics. The company shall not be contractually or non-contractually liable for any damage to people, animals or objects, for failures caused by errors during installation, adjustment and maintenance or incorrect use. All the uses not expressly indicated in this manual are not allowed.

1.1. STORAGE OF THE DOCUMENTATION

Deliver the following instructions plus all the complementary documentation to the system user, who shall be responsible for keeping the instructions so that they are always available when needed.
Read carefully this chapter; all the procedures must be carried out by qualified personnel according to the regulations in force in the different countries (M.D. 329/2004).
The unit must be installed in such a way as to make all maintenance and/or repair operations possible.
The warranty of the device does not in any case cover costs owing to ladder trucks, lifts or other lifting systems that may be required in order to carry out repairs under warranty.
Do not modify or tamper with the chiller as this may cause dangerous situations and the manufacturer shall not be liable for any damages. The warranty shall not be valid if the indications mentioned above are not observed.

1.2. SAFETY PRECAUTIONS AND INSTALLATION

- the chiller must be installed by an authorised and qualified technician, in compliance with the national legislation in force in the country of destination
  AERMEC shall not be held responsible for any damage whatsoever resulting from the non-compliance with these instructions.
- Before starting any work, it is necessary TO READ CAREFULLY THE INSTRUCTIONS, AND TO PERFORM THE SAFETY CHECKS TO AVOID ANY RISKS. All the personnel in charge must be aware of the operations and the risks that may arise when all the unit installation operations begin.

2. PRODUCT IDENTIFICATION

NXW are identified by the following:

- PACKAGING LABEL
  that includes the product identification data
- TECHNICAL PLATE
  Placed on the right strut side
  (see fig.1)

NB
If the identification plate, or any other means to identify the product, is tampered with, removed or missing, installation and maintenance operations are hampered

3. DESCRIPTION AND CHOICE OF THE UNIT

The NXW Heat pumps and reversible water-water FOR INDOOR INSTALLATION have been designed to completely satisfy any plant and application needs thanks to a wide range of models, configurations and accessories.

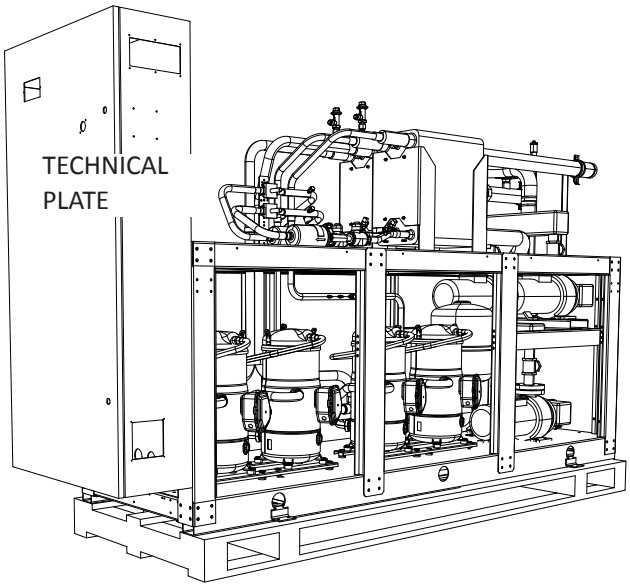


fig.1 technical plate

For years Aermec has been attentive to the energy efficiency issue, and has now designed the NXW units with the aim of ensuring high efficiency levels with both full and partial loads. The NXW unit is commissioned and delivered completely charged with R410A refrigerant and oil (on site it will be necessary only to provide the hydraulic and electric connections), while the Condenserless <<E>> versions are delivered only with a watertight charge (data available on demand).

3.1. AVAILABLE MODELS

- Heat pump H (heat pump with gas side cycle inversion)

Extended operating limits:

- temperature of condenser output water up to 55°/131°F
- temperature of evaporator output water down to -8°/18°F

3.2. AVAILABLE VERSIONS

- Silenced L

  Reduced sound emission thanks to total compressor casing of the machine with galvanised sheet metal panels of a suitable thickness and with good sound-absorbing capacity

Heat recovery units:

- Without recovery units °
- Desuperheater D: They are equipped with a partial plate heat recovery unit installed in series with the condenser.
- Total recovery T: They are equipped with a plate heat exchanger installed in parallel to the condenser for total recovery of the dissipated heat.

Condenser:

- Standard °
- Condenserless E (on demand)

3.3. AVAILABLE VERSIONS

NXW range chillers are available in 11 sizes. By combining the wide variety of available options, it is possible to configure each model in the NXW range in such a way as to meet the most varied system requirements. To make installation easier, the machine can be provided with an hydronic kit evaporator and hydronic kit condenser, optimising spaces, times and installation costs. The following configurator shows the methods by which the commercial code of 15 fields that make it up representing the options available is compiled.

3.4. DESCRIPTION AND CHOICE OF THE UNIT

1 2 3	4 5 6 7	8	9	10	11	12	13	14	15
NXW	0650	°	°	°	°	°	°	°	°

Field:

1 2 3 **Code** NXW

4 5 6 7 Size: 0500, 0550, 0600, 0650, 0700, 0750, 0800, 0900, 1000, 1250, 1400

8 Field of use:

°	Standard mechanical thermostatic valve up to +4°C/39°F
Y	Low water temperature mechanical thermostatic valve (down to 4°C/39°F up to -8°C/18°F)
X	Electronic thermostatic valve also for low water temperature (up to -8°C/18°F)

9 Model:

°	heat pump with water side inversion
H	heat pump with gas side cycle inversion

10 Version:

L	silenced

11 Evaporator:

°	standard
E	condenserless (technical data on demand)

12 Heat recovery

°	without recovery units
D	with desuperheater
T	with total heat recovery

13 Power supply

6 [1]	230V~3 60Hz with thermomagnetic switches
7	460V~3 60Hz with thermomagnetic switches
8	575V~3 60Hz with thermomagnetic switches

14 Evaporator side pumps [2]

°	without pumping assembly
M	low-head pump
N	low-head pump and reserve pump
O	high-head pump
P	high-head pump and reserve pump

15 Condenser side pumps [2]

°	without pumping assembly
U	low-head pump
V	low-head pump and reserve pump
W	high-head pump
Z	high-head pump and reserve pump

– the standard options are shown by the symbol °;
– these combinations are not possible: YD, YT HE, HT, ET, T with evaporator or condenser side pumps
[1] available only for sizes 0500 to 0800
[2] “evaporator” is the heat exchanger that works as such in cooling mode; “condenser” is the heat exchanger that works as such in heating mode

4. DESCRIPTION OF COMPONENTS

4.1. COOLING CIRCUIT

Compressor
Scroll-type hermetic compressors fitted with electrical carter compressors heating elements as standard. The heating element is powered automatically when the unit is still provided the unit is kept powered up.
Evaporator
Plate type (AISI 316). It is insulated externally with closed cell material to reduce thermal dispersions.
Condensers
Plate type (AISI 316). It is insulated externally with closed cell material to reduce thermal dispersions.
Filter-drier
Of the mechanical cartridge type, made of ceramics and hygroscopic material able to trap impurities and any traces of humidity in the cooling circuit.
Liquid separator
(for E version only)
Located on the suction point of the compressor, to protect against any flowback of liquid refrigerant, flooded start-ups, operation in the presence of liquid
Liquid indicator
One per circuit, for checking the refrigerant gas load and any humidity in the cooling circuit.
Thermostatic valve
The valve with external equaliser on the output of the evaporator, modulates the gas flow to the evaporator in accordance with the heat load in such a way as to assure a sufficient degree of overheating at the intake gas.
Taps
They are located in the liquid and discharge lines and allow to intercept the refrigerant in case of extraordinary maintenance.
Solenoid valve
The valve closes when the compressor turns off, preventing the flow of refrigerant gas towards the evaporator.

4.2. FRAME

Load-bearing structure realised in suitably thick heat galvanized steel sheets, it is painted with polyester dust to guarantee resistance to atmospheric agents (RAL 9002)

SOUND PROTECTION COVERING (Only silenced versions)
It is comprised of panels in suitably thick galvanized sheet metal and internally finished with sound-proofing material. Allows the sound power level emitted from the unit to be reduced by 6 db(A).

4.3. HYDRAULIC COMPONENTS

Flow switch (installed on the versions with a pump).
Its job is to make sure that there is water circulation in the evaporator. If this is not the case, it shuts down the unit.
NOTE:
In the heat pump vesion, there is a second flow switch (condenser side)
Circulation pump
(Condenser/Evaporator)
Depending on the characteristics of the pump chosen, it offers a useful head to overcome the pressure drops in the system. There is also the possibility to have a reserve pump.
The reserve pump is managed by the electronic card.
Water filter
versions standard: NOT INCLUDED
versions with a pumps: INCLUDED
Allows you to block and eliminate any impurities in the hydraulic circuits. Inside, it has a filtering mesh with holes not greater than one millimetre. It is indispensable to avoid serious damage to the plate heat exchanger.
NB The filter protects only the exchangers (in case of particularly dirty water, we recommend an external filter to protect the pumps)
Drain valve
(versions with water accumulator or pump)
Of the automatic type, assembled on the upper part of the hydraulic system; it releases any air bubbles that may be present in the system.
Expansion tank 6,6gal (standard in the version with pump)
With nitrogen pre-load membrane. In the version [°] is positioned on the evaporator, while in the version [H] is positioned on the heat exchanger that works as evaporator in cooling mode

SAFETY AND CONTROL COMPONENTS
Low pressure transducer
Allows displaying, on the microprocessor board display, the value of the compressor's suction pressure (one per circuit) on the low-pressure side of the cooling circuit
High pressure transducer
Allows displaying, on the microprocessor board display, the value of the compressor's delivery pressure (one per circuit) On the high pressure side of the cooling circuit
High pressure switch
Factory-calibrated, it is placed on the high pressure side of the cooling circuit, it shuts down compressor operation in the case of abnormal operating pressure.
Cooling circuit safety valves (HP)
Calibrated at 653psi HP, they cut in relieving the overpressure in the case of abnormal operating pressures.

Thermomagnetic switches to protect the compressors.

4.4. ELECTRICAL COMPONENTS

Electrical panel
Contains the power section and the management of the controls and safety devices.

Door-block disconnecting switch
It is possible to access the electrical panel by disconnecting the voltage, then using the opening lever of the panel itself. This lever can be blocked with one or more padlocks during maintenance, in order to prevent the machine being powered up accidentally.

Control keypad
Provides full control functions.

NB
For a more detailed description refer to the user manual.

4.5. ELECTRONIC REGULATION

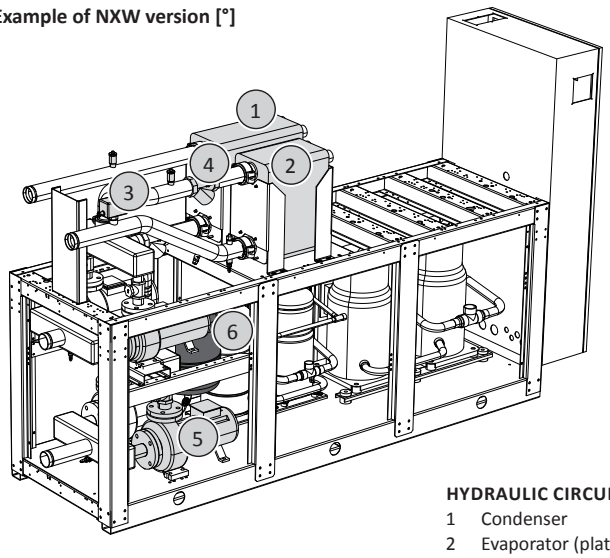
Electronic regulation on the NXW chillers consists of a control board and a control panel with display. On each board transducers, loads and alarms are connected. The programme and parameter presets are stored permanently in the controller's FLASH memory, to ensure that they are kept in memory even when the system is not powered (without the need for an auxiliary battery).
The connection to the serial supervision assistance line in accordance with the **RS485** standard, is performed through the serial boards **ACCESSORY RS485P1** and the communication protocol.
• The terminal, which is always controlled by microprocessor, is equipped with a display, a keypad and a set of LEDs, and is used for programming check parameters (Set Points, differential band, alarm threshold) and for fundamental user operations (ON/OFF, display of controlled values).
The terminal does not need to be connected to the PGD1 for normal controller operation, and is necessary only when initially programming the basic parameters.

Microprocessor
- Multilingual menu
- Phase sequence control
- Independent control of individual compressors
- Ammetric transformer
- Cumulative failure block signalling
- Alarm log function
- Daily/weekly programming
- Inlet/outlet water temperature display
- Alarm display
- Full proportional regulation of the output water temperature

- Programmable timer function
- Interfaceability with the Modbus protocol (accessory)
- Control and management of pump/s rotation
- Compressor rotation control
- Analogue input from 4 to 20 mA
- “Always Working” function. In case of critical conditions the machine does not arrest but is able to self-adjust itself and provide maximum output power in those conditions
- Self adapting operating differential “Switching Histeresys” to ensure correct compressor operation at all times even in plants with a low water content or insufficient flow rates. This system reduces the compressor wear
- The PDC “Pull Down Control” system to prevent the activation of the power steps when the water temperature is approaching the set point quickly. It optimises the operation of the machine both when running normally or when there are load variations, thereby assuring top machine efficiency in all situations.

For further information, refer to the user manual.

Example of NXW version [°]



HYDRAULIC CIRCUIT KEY

1 Condenser
2 Evaporator (plate-type exchangers)
3 Flow switch
4 Filter
5 Pump
6 Expansion tank

NB

The Victaulic joints and the soldering studs for the condenser and evaporator are provided

5. ACCESSORIES

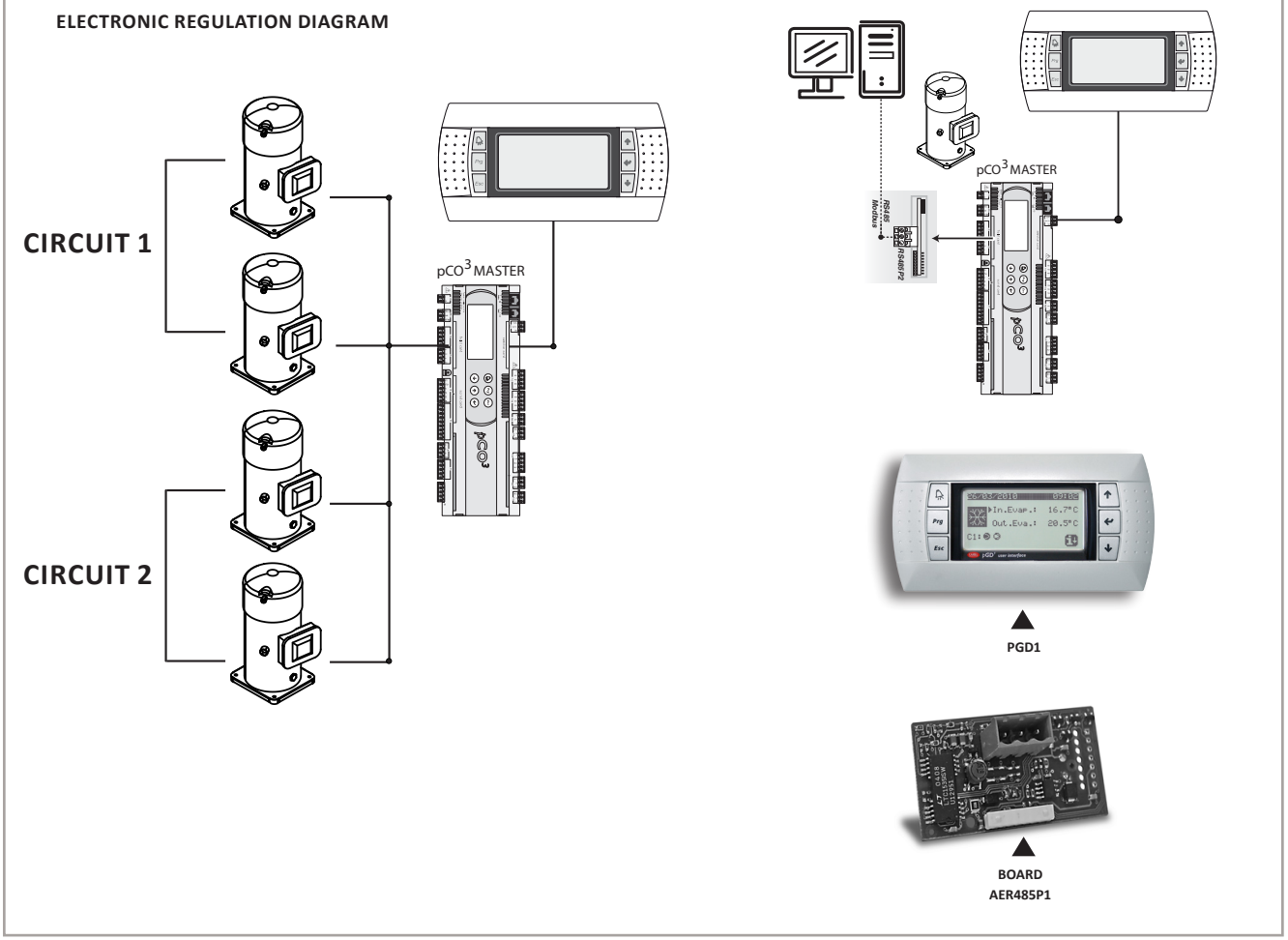
5.1. ELECTRIC REGULATION ACCESSORIES

- AER485P1: Through this accessory, it is possible to connect the unit with BMS supervision systems with electrical standard RS 485 and MODBUS type protocol
  NOTE: disclosure must be provided for compressor No. 1 .
- PGD1: In addition to the control terminal on board the machine itself, NXW machines can also be equiped with an external PGD1 remote control terminal. PGD1 remote terminals provide the same functions as the on-board terminals (keyboard controls and display).
- PGD1 terminals can be installed at distances of up to 1 km from the machine (up to 164ft with telephone cable AWG24, for distances of over 50 metres ensure that the 2nd extension card is powered by a voltage between 21 and 30 V dc.

5.2. GENERAL ACCESSORIES

- AVX: spring anti-vibration supports

ELECTRONIC REGULATION DIAGRAM



COMPATIBILITY OF ACCESSORIES

NXW	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
AER485P1	Through this accessory it is possible to connect the unit with BMS supervision systems with electrical standard RS 485 and MODBUS type protocol.										
ALL	•	•	•	•	•	•	•	•	•	•	•
PGD1	REMOTE CONTROL TERMINAL PGD1										
	•	•	•	•	•	•	•	•	•	•	•
AVX	Spring antivibration support. (for more information about compatibility contact us)										

6. TECHNICAL DATA

6.1. VERSION - L (SILENCED)

Mod. NXW	vers	U.M.	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
Cooling capacity [1]	L	ton	31,76	34,66	36,77	42,25	47,06	54,17	62,78	70,92	80,16	90,51	101,77
Total input power		kW	23,5	25,0	27,2	30,4	35,1	38,7	47,4	55,2	61,6	69,7	77,4
Evaporator water flow rate		gpm	76,16	83,10	88,13	101,29	112,80	129,81	150,49	169,99	192,10	216,96	243,92
Evaporator pressure drop		PSI	2,8	3,2	3,6	4,1	4,8	3,9	4,5	5,5	3,8	3,5	3,5
Condenser water flow rate		gpm	95,64	104,35	110,68	127,19	141,66	163,02	188,99	213,47	241,25	272,47	306,32
Pressure drop at condenser		PSI	2,6	3,0	3,5	3,5	4,2	2,6	3,3	4,2	3,2	3,6	3,8
Heating capacity [2]	L	BTU/h	412600	449500	476800	545400	609600	695400	818300	924500	1047800	1184800	1326500
Total input power		kW	28,5	31,1	33,7	38,4	43,8	47,4	57,4	66,3	73,6	83,4	92,8
Condenser water flow rate		gpm	91,46	99,64	105,72	120,95	135,20	154,20	181,46	205,02	232,37	262,69	294,17
Pressure drop at condenser		PSI	2,3	2,8	3,0	3,2	3,9	2,3	3,2	3,9	2,9	3,3	3,5
Evaporator water flow rate		gpm	70,96	77,28	81,50	93,35	103,67	120,10	140,17	157,32	179,43	202,69	227,41
Evaporator pressure drop		PSI	2,3	2,8	3,0	3,3	4,1	3,3	3,9	4,8	3,3	3,0	3,0
ENERGY INDEXES													
EER	L	BTU/W	16,23	16,65	16,23	16,69	16,10	16,81	15,90	15,43	15,62	15,59	15,79
COP	L	W/W	4,24	4,23	4,15	4,16	4,07	4,30	4,17	4,08	4,17	4,16	4,19
AHRI PART LOAD RATINGS													
IPLV	L	W/W	6,11	6,27	6,24	6,27	6,06	6,33	5,99	5,81	5,88	5,87	5,94
EER (100% load)		W/W	4,76	4,88	4,75	4,88	4,72	4,92	4,66	4,52	4,58	4,57	4,62
EER (75% load)		W/W	5,56	5,70	5,68	5,71	5,51	5,75	5,44	5,28	5,35	5,34	5,40
EER (50% load)		W/W	6,49	6,65	6,62	6,66	6,43	6,72	6,35	6,16	6,24	6,23	6,31
EER (25% load)		W/W	6,75	6,93	6,90	6,94	6,70	6,99	6,62	6,42	6,50	6,49	6,57
ELECTRICAL DATA (230V-3-60Hz power supply)													
Input current (cooling)	L	A	93	89	100	106	126	144	188	-	-	-	-
Input current (heating)		A	106	105	116	125	149	168	213	-	-	-	-
No pump version													
LRA	L	A	402	374	414	350	431	471	526	-	-	-	-
MCA		A	140	146	152	158	203	243	264	-	-	-	-
MOP		A	202	203	214	195	260	300	326	-	-	-	-
Recommended fuse		A	200	200	200	175	250	300	300	-	-	-	-
Evap + cond low head pumps													
LRA	L	A	418	390	430	368	451	495	553	-	-	-	-
MCA		A	155	161	168	176	223	266	291	-	-	-	-
MOP		A	218	218	230	213	280	323	353	-	-	-	-
Recommended fuse		A	200	200	225	200	250	300	350	-	-	-	-
Evap + cond high head pumps													
LRA	L	A	422	394	434	374	458	507	562	-	-	-	-
MCA		A	160	166	172	181	229	278	299	-	-	-	-
MOP		A	222	223	234	218	286	335	361	-	-	-	-
Recommended fuse		A	200	200	225	200	250	300	350	-	-	-	-
ELECTRICAL DATA (460V-3-60Hz power supply)													
Input current (cooling)	L	A	42	43	48	53	60	65	85	90	94	107	119
Input current (heating)		A	48	50	55	62	70	76	97	104	109	123	137
No pump version													
LRA	L	A	210	192	221	187	217	227	270	321	331	391	417
MCA		A	68	73	79	87	98	108	128	138	149	177	203
MOP		A	97	98	108	107	123	133	157	172	183	224	250
Recommended fuse		A	90	90	100	100	110	125	150	150	175	200	225
Evap + cond low head pumps													
LRA	L	A	218	200	229	196	227	239	284	337	347	409	434
MCA		A	76	81	87	96	108	120	141	154	164	195	221
MOP		A	105	106	116	116	133	145	170	188	198	242	267
Recommended fuse		A	100	100	110	110	125	125	150	175	175	225	250
Evap + cond high head pumps													
LRA	L	A	220	202	231	199	230	245	288	343	359	419	445
MCA		A	78	83	89	99	112	126	146	160	177	206	231
MOP		A	107	108	118	119	137	151	175	194	211	252	278
Recommended fuse		A	100	100	110	110	125	150	150	175	200	250	250

Reference data (AHRI standard):

In cooling operation [1]:

Evaporator:

Water outlet temperature ..... 6,7°C - 44°F

Water flow ..... 0,043l/s per kW - 2,4gpm/ton

Condenser:

Water inlet temperature ..... 29,4°C - 85°F

Water flow ..... 0,054l/s per kW - 3gmp/ton

In heating operation [2]:

Evaporator:

Water inlet temperature ..... 10°C - 50°F

Water outlet temperature ..... 5°C - 41°F

Condenser:

Water inlet temperature ..... 40°C - 104°F

Water outlet temperature ..... 45°C - 113°F

Mod. NXW	vers	U.M.	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
ELECTRICAL DATA (575V-3-60Hz power supply)													
Input current (cooling)	L	A	33	33	37	41	46	50	65	70	73	82	91
Input current (heating)		A	37	39	43	48	54	58	74	80	84	95	105
No pump version													
LRA	L	A	160	139	162	125	161	177	214	263	266	335	358
MCA		A	61	58	63	62	80	96	115	117	120	145	168
MOP		A	88	80	90	77	102	118	142	145	148	184	207
Recommended fuse		A	80	80	80	75	100	110	125	125	125	175	200
Evap + cond low head pumps													
LRA	L	A	166	146	169	132	169	186	225	276	278	349	372
MCA		A	67	64	70	70	88	105	126	130	133	160	182
MOP		A	94	86	96	84	110	127	152	157	160	198	221
Recommended fuse		A	90	80	90	80	110	125	150	150	150	175	200
Evap + cond high head pumps													
LRA	L	A	168	147	170	134	172	191	228	281	288	358	380
MCA		A	69	66	71	72	91	110	129	135	143	168	191
MOP		A	96	88	98	86	113	132	156	162	170	207	229
Recommended fuse		A	90	80	90	80	110	125	150	150	150	200	200
CHARGE (Circuit C1/C2)													
Refrigerant R410A	L	lb (C1)	16,1	16,1	16,1	19,2	19,2	28,7	29,1	29,1	43,2	48,5	59,1
		lb (C2)	16,1	16,1	16,1	19,2	19,2	28,7	29,1	29,1	43,2	48,5	59,1
Oil	L	gal (C1)	0,9	1,8	1,8	1,8	1,8	1,8	1,8	2,5	2,5	3,0	3,6
		gal (C2)	0,9	0,9	0,9	1,8	1,8	1,8	1,8	1,8	2,5	3,0	3,6
COMPRESSOR													
Quantity / Circuit	L	n° / n°	2 / 2	3 / 2	3 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2
EVAPORATOR													
Quantity	L	n° / n°	1	1	1	1	1	1	1	1	1	1	1
Water content		gal	2,5	2,5	2,5	2,8	2,8	3,9	4,4	4,4	8,0	9,9	12,0
Water connections (Victaulic)		inch	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	3"	3"	3"
CONDENSER													
Quantity	L	n° / n°	1	1	1	1	1	1	1	1	1	1	1
Water content		gal	3,2	3,2	3,2	3,9	3,9	8,0	8,0	8,0	12,0	13,2	16,1
Water connections (Victaulic)		inch	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	3"	3"	3"
TOTAL HEAT RECOVERY													
Recovered heating capacity [3]	L	BTU/h	426900	464500	495200	563500	631800	720600	850400	959700	1079200	1226100	1376400
Quantity		n° / n°	1	1	1	1	1	1	1	1	1	1	1
Chiller input power		kW	28,9	31,4	34,1	38,8	44,3	48,0	58,2	67,3	74,4	84,5	94,0
Total recovery water flow		gpm	94,95	102,80	109,57	125,31	140,06	160,16	188,44	213,02	239,64	271,63	305,51
Total recovery pressure drop		PSI	2,5	2,9	3,3	3,3	4,1	2,5	3,3	4,2	3,0	3,5	3,6
Water connections (Victaulic)		inch	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	3"	3"	3"
DESUPERHEATER													
Recovered heating capacity [3]	L	BTU/h	74500	80600	86100	97000	107900	116100	138000	161500	170800	190600	210400
Quantity		n° / n°	2	2	2	2	2	2	2	2	2	2	2
Desuperheater water flow		gpm	16,51	17,87	19,08	21,51	23,93	25,75	30,60	35,82	37,86	42,26	46,65
Desuperheater pressure drop		PSI	0,1	0,2	0,2	0,2	0,2	0,3	0,3	0,4	0,3	0,4	0,5
Weight		lb	50,7	50,7	50,7	50,7	50,7	50,7	50,7	63,9	63,9	63,9	63,9
Water connections (Victaulic)		inch	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2
EVAPORATOR PUMPS													
Input power (L.P. - M, N)	L	kW	2,2	2,2	2,2	2,2	3,0	3,0	4,0	4,0	4,0	4,0	4,0
Input power (H.P. - O, P)			3,0	3,0	3,0	3,0	4,0	4,0	4,0	7,5	7,5	7,5	7,5
Input current (M, N) ~230V		A	7,8	7,8	7,8	7,8	10,0	10,0	13,2	-	-	-	-
~460V			3,9	3,9	3,9	3,9	5,0	5,0	6,6	6,6	6,6	6,6	6,6
~575V			3,1	3,1	3,1	3,1	4,0	4,0	5,3	5,3	5,3	5,3	5,3
Input current (O, P) ~230V		A	10,0	10,0	10,0	10,0	13,2	13,2	13,2	-	-	-	-
~460V			5,0	5,0	5,0	5,0	6,6	6,6	6,6	11,0	11,0	11,0	11,0
~575V			4,0	4,0	4,0	4,0	5,3	5,3	5,3	8,8	8,8	8,8	8,8
Available head (L.P. - M, N) (*)		PSI	3,6	3,4	3,2	2,9	2,7	2,5	3,1	2,5	3,1	2,6	2,0
Available head (H.P. - O, P) (*)			5,3	5,1	5,0	4,6	5,5	5,0	4,1	5,4	5,9	5,4	4,7

(*) **Performance values refer to cooling mode**

Cooling with recovery operation [3]:
Evaporator:
Water outlet temperature.....6,7°C - 44°F
Water flow.....0,043l/s per kW - 2,4gpm/ton
Desuperheater / Total recovery:
Water inlet temperature .....40°C - 104°F
Water outlet temperature.....45°C - 113°F

Mod. NXW		vers	U.M.	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
CONDENSER PUMPS														
Input power (L.P. - U, V)		L	kW	2,2	2,2	2,2	3,0	3,0	4,0	4,0	5,5	5,5	7,5	7,5
Input power (H.P. - W, Z)				3,0	3,0	3,0	4,0	4,0	7,5	7,5	7,5	11,0	11,0	11,0
Input current (U, V)	~230V		A	7,8	7,8	7,8	10,0	10,0	13,2	13,2	-	-	-	-
	~460V			3,9	3,9	3,9	5,0	5,0	6,6	6,6	9,2	9,2	11,0	11,0
	~575V			3,1	3,1	3,1	4,0	4,0	5,3	5,3	7,4	7,4	8,8	8,8
Input current (W, Z)	~230V		A	10,0	10,0	10,0	13,2	13,2	22,0	22,0	-	-	-	-
	~460V			5,0	5,0	5,0	6,6	6,6	11,0	11,0	11,0	17,3	17,3	17,3
	~575V			4,0	4,0	4,0	5,3	5,3	8,8	8,8	8,8	13,8	13,8	13,8
Available head (L.P. - U, V) (*)			PSI	22,0	20,0	18,4	18,0	15,4	21,0	15,7	18,4	21,8	25,2	16,8
Available head (H.P. - W, Z) (*)				33,8	31,8	30,2	35,5	30,9	41,2	35,2	28,7	38,0	33,6	28,6
EXPANSION VESSEL														
Quantity / Capacity		L	n° / gal	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6
Expansion vessel calibration			PSI	21,8	21,8	21,8	21,8	21,8	21,8	21,8	21,8	21,8	21,8	21,8
SOUND DATA														
Sound power		L	dB(A)	79	78	79	79	80	80	82	85	87	89	90
Sound pressure			dB(A)	47	46	47	47	48	48	50	53	55	57	58
DIMENSIONS (without pumps)														
Hight		L	mm	1885							1885			
			in	74,2							74,2			
Width			mm	800							800			
			in	31,5							31,5			
Length			mm	2090							2420			
			in	82.28							95,28			
Weight			kg	730	791	792	878	887	1030	1073	1265	1569	1676	1826
			lb	1609,4	1743,9	1746,1	1935,7	1955,5	2270,8	2365,6	2788,8	3459,1	3694,9	4025,6
DIMENSIONS (with 4 pumps)														
Hight		L	mm	1885							1885			
			in	74,2							74,2			
Width			mm	800							800			
			in	31,5							31,5			
Length			mm	2944							3412			
			in	115.90							134.33			
Weight			kg	1120	1180	1181	1294	1329	1549	1566	1873	2250	2357	2507
			lb	2469,2	2601,5	2603,7	2852,8	2929,9	3415,0	3452,4	4129,3	4960,4	5196,3	5527,0

(*) Performance values refer to cooling mode

SOUND POWER
Aermec determines sound power values on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification.

SOUND PRESSURE
Sound pressure in free field, at 10 m / 32,8ft distance from the external surface of the unit (in accordance with UNI EN ISO 3744)

6.2. VERSION H (HEAT PUMP WITH WATER SIDE INVERSION)
VERSION HL (HEAT PUMP WITH WATER SIDE INVERSION - SILENCED)

Mod. NXW	vers	U.M.	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
Cooling capacity [1]	L	ton	31,88	34,83	37,53	42,59	48,20	53,94	62,36	73,11	82,66	91,79	103,08
Total input power		kW	23,7	25,2	27,0	30,7	35,0	38,9	47,6	54,2	62,0	70,2	78,0
Evaporator water flow rate		gpm	76,42	83,49	89,97	102,07	115,55	129,29	149,44	175,22	198,12	219,98	247,06
Evaporator pressure drop		PSI	1,9	2,2	2,0	2,5	2,8	1,7	2,3	1,9	2,0	2,6	2,6
Condenser water flow rate		gpm	95,97	104,85	112,98	128,18	145,11	162,36	187,67	220,05	248,81	276,25	310,27
Pressure drop at condenser		PSI	2,6	3,0	2,8	3,5	3,9	2,6	3,3	2,6	3,0	3,8	3,8
Heating capacity [2]	L	BTU/h	388700	422800	453900	517800	584400	656100	773900	888000	995600	1121200	1254400
Total input power		kW	28,6	31,4	33,4	38,8	43,9	47,8	57,4	64,9	73,2	83,6	93,2
Condenser water flow rate		gpm	86,15	93,75	100,61	114,84	129,55	145,48	171,58	196,89	220,75	248,59	278,17
Pressure drop at condenser		PSI	2,3	2,8	2,5	3,2	3,3	2,3	3,2	2,3	2,6	3,2	3,3
Evaporator water flow rate		gpm	65,58	71,17	76,55	86,95	98,00	111,09	130,28	150,20	168,08	188,44	211,12
Evaporator pressure drop		PSI	1,2	1,5	1,3	1,6	1,7	1,2	1,6	1,3	1,5	1,7	1,7
ENERGY INDEXES													
EER	L	BTU/W	16,15	16,60	16,69	16,66	16,54	16,65	15,73	16,20	16,01	15,70	15,87
COP	L	W/W	3,98	3,95	3,97	3,91	3,90	4,02	3,95	4,01	3,98	3,93	3,94
AHRI PART LOAD RATINGS													
IPLV	L	W/W	6,08	6,26	6,29	6,27	6,22	6,26	5,92	6,10	6,03	5,91	5,97
EER (100% load)		W/W	4,73	4,87	4,89	4,88	4,84	4,87	4,61	4,74	4,69	4,60	4,65
EER (75% load)		W/W	5,53	5,69	5,72	5,70	5,65	5,70	5,38	5,54	5,48	5,37	5,43
EER (50% load)		W/W	6,45	6,64	6,67	6,66	6,60	6,65	6,28	6,47	6,39	6,27	6,34
EER (25% load)		W/W	6,72	6,92	6,95	6,93	6,87	6,92	6,54	6,74	6,66	6,53	6,60
ELECTRICAL DATA (230V-3-60Hz power supply)													
Input current (cooling)	L	A	94	90	100	107	126	144	188	-	-	-	-
Input current (heating)		A	106	105	116	126	149	168	214	-	-	-	-
No pump version													
LRA	L	A	402	374	414	350	431	471	526	-	-	-	-
MCA		A	140	146	152	158	203	243	264	-	-	-	-
MOP		A	202	203	214	195	260	300	326	-	-	-	-
Recommended fuse		A	200	200	200	175	250	300	300	-	-	-	-
Evap + cond low head pumps													
LRA	L	A	418	390	430	368	451	495	553	-	-	-	-
MCA		A	155	161	168	176	223	266	291	-	-	-	-
MOP		A	218	218	230	213	280	323	353	-	-	-	-
Recommended fuse		A	200	200	225	200	250	300	350	-	-	-	-
Evap + cond high head pumps													
LRA	L	A	422	394	434	374	458	507	562	-	-	-	-
MCA		A	160	166	172	181	229	278	299	-	-	-	-
MOP		A	222	223	234	218	286	335	361	-	-	-	-
Recommended fuse		A	200	200	225	200	250	300	350	-	-	-	-
ELECTRICAL DATA (460V-3-60Hz power supply)													
Input current (cooling)	L	A	42	43	48	53	59	65	85	89	94	60	119
Input current (heating)		A	48	51	55	63	70	76	97	102	109	124	137
No pump version													
LRA	L	A	210	192	221	187	217	227	270	321	331	391	417
MCA		A	68	73	79	87	98	108	128	138	149	177	203
MOP		A	97	98	108	107	123	133	157	172	183	224	250
Recommended fuse		A	90	90	100	100	110	125	150	150	175	200	225
Evap + cond low head pumps													
LRA	L	A	218	200	229	196	227	239	284	337	347	409	434
MCA		A	76	81	87	96	108	120	141	154	164	195	221
MOP		A	105	106	116	116	133	145	170	188	198	242	267
Recommended fuse		A	100	100	110	110	125	125	150	175	175	225	250
Evap + cond high head pumps													
LRA	L	A	220	202	231	199	230	245	288	343	359	419	445
MCA		A	78	83	89	99	112	126	146	160	177	206	231
MOP		A	107	108	118	119	137	151	175	194	211	252	278
Recommended fuse		A	100	100	110	110	125	150	150	175	200	250	250

Reference data (AHRI standard):

In cooling operation [1]:
Evaporator:
Water outlet temperature ..... 6,7°C - 44°F
Water flow ..... 0,043l/s per kW - 2,4gpm/ton
Condenser:
Water inlet temperature ..... 29,4°C - 85°F
Water flow ..... 0,054l/s per kW - 3gmp/ton

In heating operation [2]:
Evaporator:
Water inlet temperature ..... 10°C - 50°F
Water outlet temperature ..... 5°C - 41°F
Condenser:
Water inlet temperature ..... 40°C - 104°F
Water outlet temperature ..... 45°C - 113°F

Mod. NXW	vers	U.M.	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
ELECTRICAL DATA (575V-3-60Hz power supply)													
Input current (cooling)	H-HL	A	33	33	37	41	46	50	66	69	73	46	92
Input current (heating)		A	37	39	42	48	54	59	75	79	84	95	106
No pump version													
LRA	H-HL	A	160	139	162	125	161	177	214	263	266	335	358
MCA		A	61	58	63	62	80	96	115	117	120	145	168
MOP		A	88	80	90	77	102	118	142	145	148	184	207
Recommended fuse		A	80	80	80	75	100	110	125	125	125	175	200
Evap + cond low head pumps													
LRA	H-HL	A	166	146	169	132	169	186	225	276	278	349	372
MCA		A	67	64	70	70	88	105	126	130	133	160	182
MOP		A	94	86	96	84	110	127	152	157	160	198	221
Recommended fuse		A	90	80	90	80	110	125	150	150	150	175	200
Evap + cond high head pumps													
LRA	H-HL	A	168	147	170	134	172	191	228	281	288	358	380
MCA		A	69	66	71	72	91	110	129	135	143	168	191
MOP		A	96	88	98	86	113	132	156	162	170	207	229
Recommended fuse		A	90	80	90	80	110	125	150	150	150	200	200
CHARGE (Circuit C1/C2)													
Refrigerant R410A	H-HL	lb (C1)	17,0	17,0	20,5	20,5	23,1	30,9	30,9	46,7	51,4	51,4	62,4
		lb (C2)	17,0	17,0	20,5	20,5	23,1	30,9	30,9	46,7	51,4	51,4	62,4
Oil	H-HL	gal (C1)	0,9	1,8	1,8	1,8	1,8	1,8	1,8	2,5	2,5	3,0	3,6
		gal (C2)	0,9	0,9	0,9	1,8	1,8	1,8	1,8	1,8	2,5	3,0	3,6
COMPRESSOR													
Quantity / Circuit	H-HL	n° / n°	2 / 2	3 / 2	3 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2
EVAPORATOR													
Quantity	H-HL	n° / n°	1	1	1	1	1	1	1	1	1	1	1
Water content		gal	3,2	3,2	3,9	3,9	4,4	8,0	8,0	12,0	13,2	13,2	16,1
Water connections (Victaulic)		inch	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	3"	3"	3"
CONDENSER													
Quantity	H-HL	n° / n°	1	1	1	1	1	1	1	1	1	1	1
Water content		gal	3,2	3,2	3,9	3,9	4,4	8,0	8,0	12,0	13,2	13,2	16,1
Water connections (Victaulic)		inch	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	3"	3"	3"
DESUPERHEATER [3]													
Recovered heating capacity	H-HL	BTU/h	74500	80600	86100	97000	107900	116100	138000	161500	170800	190600	210400
Quantity		n° / n°	2	2	2	2	2	2	2	2	2	2	2
Desuperheater water flow		gpm	16,5	17,9	19,1	21,5	23,9	25,7	30,6	35,8	37,9	42,3	46,6
Desuperheater pressure drop		PSI	0,1	0,2	0,2	0,2	0,2	0,3	0,3	0,4	0,3	0,4	0,5
Weight		lb	50,7	50,7	50,7	50,7	50,7	50,7	50,7	63,9	63,9	63,9	63,9
Water connections (Victaulic)		inch	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2
EVAPORATOR PUMPS													
Input power (L.P. - M, N)	H-HL	kW	2,2	2,2	2,2	2,2	3,0	3,0	4,0	4,0	4,0	4,0	4,0
Input power (H.P. - O, P)			3,0	3,0	3,0	3,0	4,0	4,0	4,0	7,5	7,5	7,5	7,5
Input current (M, N) ~230V		A	7,8	7,8	7,8	7,8	10,0	10,0	13,2	-	-	-	-
Input current (M, N) ~460V			3,9	3,9	3,9	3,9	5,0	5,0	6,6	6,6	6,6	6,6	6,6
Input current (M, N) ~575V			3,1	3,1	3,1	3,1	4,0	4,0	5,3	5,3	5,3	5,3	5,3
Input current (O, P) ~230V		A	10,0	10,0	10,0	10,0	13,2	13,2	13,2	-	-	-	-
Input current (O, P) ~460V			5,0	5,0	5,0	5,0	6,6	6,6	6,6	11,0	11,0	11,0	11,0
Input current (O, P) ~575V			4,0	4,0	4,0	4,0	5,3	5,3	5,3	8,8	8,8	8,8	8,8
Available head (L.P. - M, N) (*)		PSI	25,7	24,4	23,8	21,2	20,5	19,6	23,6	20,9	22,6	18,9	14,5
Available head (H.P. - O, P) (*)			37,6	36,3	35,7	33,1	39,3	36,8	30,7	40,8	42,1	37,7	32,6

(*) **Performance values refer to cooling mode**

Cooling with recovery operation [3]:
Evaporator:
Water outlet temperature.....6,7°C - 44°F
Water flow.....0,043l/s per kW - 2,4gpm/ton
Desuperheater / Total recovery:
Water inlet temperature .....40°C - 104°F
Water outlet temperature.....45°C - 113°F

Mod. NXW		vers	U.M.	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
CONDENSER PUMPS														
Input power (L.P. - U, V)		H-HL	kW	2,2	2,2	2,2	3,0	3,0	4,0	4,0	5,5	5,5	7,5	7,5
Input power (H.P. - W, Z)				3,0	3,0	3,0	4,0	4,0	7,5	7,5	7,5	11,0	11,0	11,0
Input current (U, V)	~230V		A	7,8	7,8	7,8	10,0	10,0	13,2	13,2	-	-	-	-
	~460V			3,9	3,9	3,9	5,0	5,0	6,6	6,6	9,2	9,2	11,0	11,0
	~575V			3,1	3,1	3,1	4,0	4,0	5,3	5,3	7,4	7,4	8,8	8,8
Input current (W, Z)	~230V		A	10,0	10,0	10,0	13,2	13,2	22,0	22,0	-	-	-	-
	~460V			5,0	5,0	5,0	6,6	6,6	11,0	11,0	11,0	17,3	17,3	17,3
	~575V			4,0	4,0	4,0	5,3	5,3	8,8	8,8	8,8	13,8	13,8	13,8
Available head (L.P. - U, V) (*)			PSI	21,9	20,0	18,9	16,7	13,6	21,2	15,8	19,3	21,2	24,7	16,1
Available head (H.P. - W, Z) (*)				33,8	31,8	30,5	35,2	30,6	41,2	35,4	29,7	38,0	33,4	28,3
EXPANSION VESSEL														
Quantity / Capacity		H-HL	n° / gal	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6	1 / 6,6
Expansion vessel calibration			PSI	21,8	21,8	21,8	21,8	21,8	21,8	21,8	21,8	21,8	21,8	21,8
SOUND DATA														
Sound power		H	dB(A)	85	84	85	85	86	86	88	91	93	95	96
Sound pressure			dB(A)	53	52	53	53	54	54	56	59	61	63	64
Sound power		HL	dB(A)	79	78	79	79	80	80	82	85	87	89	90
Sound pressure			dB(A)	47	46	47	47	48	48	50	53	55	57	58
DIMENSIONS (without pumps)														
Hight		H	mm	1835					1775	1775	1820			
			in	72,2					69,9	69,9	71,7			
Width			mm	800					800	800	800			
			in	31,5					31,5	31,5	31,5			
Lenght			mm	1790					2410	2410	2410			
			in	70,5					94,9	94,9	94,9			
Weight			kg	609	670	706	768	803	958	966	1326	1544	1594	1760
			lb	1342,6	1477,1	1556,5	1693,2	1770,3	2112,0	2129,7	2923,3	3403,9	3514,2	3880,1
Hight		HL	mm	1885							1885			
			in	74,2							74,2			
Width			mm	800							800			
			in	31,5							31,5			
Lenght			mm	2090							2420			
			in	82.28							95,28			
Weight			kg	782	843	879	941	1187	1131	1164	1524	1742	1792	1958
			lb	1724,0	1858,5	1937,9	2074,5	2616,9	2493,4	2566,2	3359,8	3840,5	3950,7	4316,7
DIMENSIONS (with 4 pumps)														
Hight		H	mm	1775					1775	1775	1850			
			in	69,9					69,9	69,9	72,8			
Width			mm	800					800	800	800			
			in	31,5					31,5	31,5	31,5			
Lenght			mm	3020					3480	3480	3480			
			in	118,9					137,0	137,0	137,0			
Weight			kg	920	980	1016	1104	1166	1398	1405	1843	2134	2184	2350
			lb	2028,3	2160,5	2239,9	2433,9	2570,6	3082,1	3097,5	4063,1	4704,7	4814,9	5180,9
Hight		HL	mm	1885							1885			
			in	74,2							74,2			
Width			mm	800							800			
			in	31,5							31,5			
Lenght			mm	2944							3412			
			in	115.90							134.33			
Weight			kg	1172	1232	1268	1356	1418	1650	1658	2132	2423	2473	2639
			lb	2583,8	2716,1	2795,5	2989,5	3126,2	3637,6	3655,3	4700,3	5341,8	5452,0	5818,0

(*) **Performance values refer to cooling mode**

SOUND POWER

Aermec determines sound power values on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification.

SOUND PRESSURE

Sound pressure in free field, at 10 m / 32,8ft distance from the external surface of the unit (in accordance with UNI EN ISO 3744

7. OPERATING LIMITS

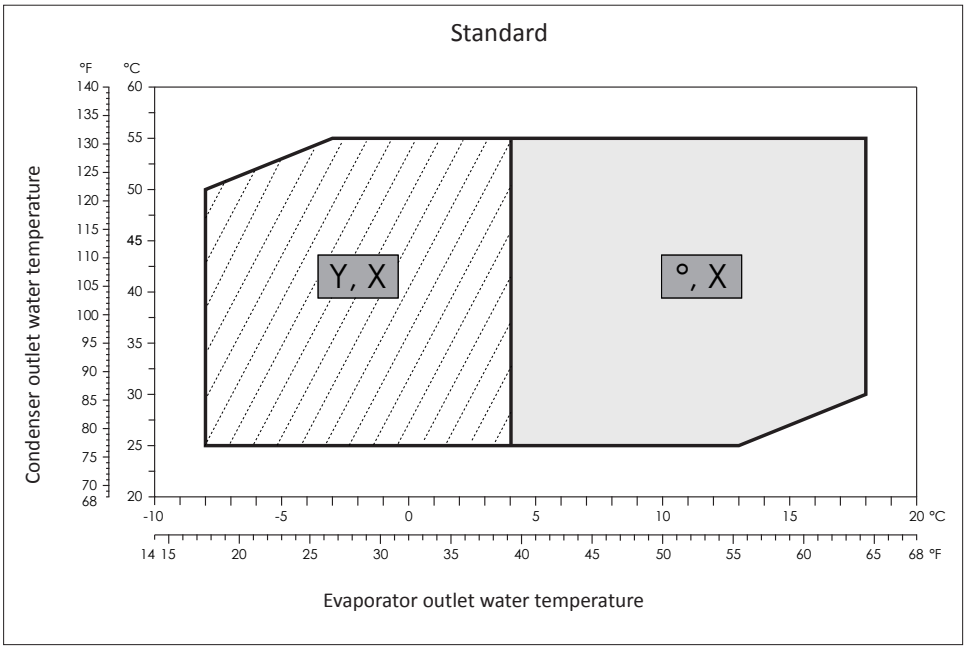
7.1. OPERATING LIMITS STANDARD VERSION

Reference should be made to the diagram below for the operating limits. (see table 7.1.1)

The diagram for the operating limits is relative to all Δt
on the evaporator and on the condenser of 5 °C.

Inlet (Δtc) Output condenser:
min: 5
max: 15

Inlet (Δte) output difference Evaporator:
min: 3
max: 10



Tab. 7.1.1

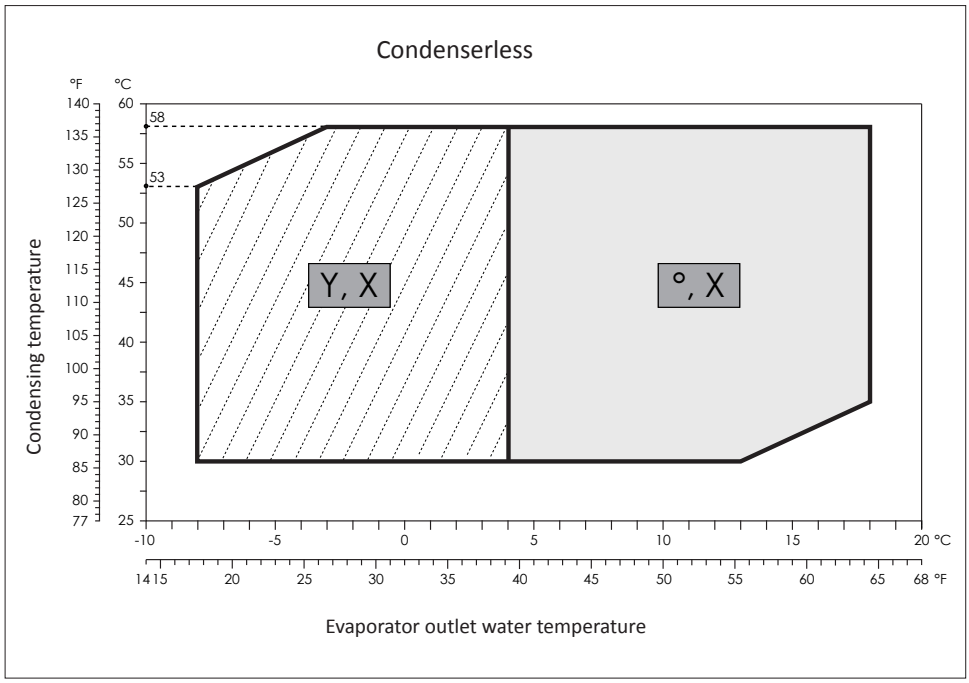
7.2. OPERATING LIMIT VERSION E (CONDENSERLESS)

Reference should be made to the diagram below for the operating limits. (see table 7.1.1)

KEY:

Operation with glycol

Standard operation



Tab. 7.2.1

° = with standard mechanical thermostatic valve up to +4°C/ 39°F
Y = Low water temperature mechanical thermostatic valve (down to 4°C/39°F up to -8°C/18°F)
X = Electronic thermostatic valve also for low water temperature (up to -8°C/18°F)

8.3 DESIGN DATA		HIGH PRESSURE SIDE	LOW PRESSURE SIDE
Maximum allowable pressure	**PSI**	653	435
Maximum temperature allowable	**°F**	248	124
Minimum temperature allowable	**°F**	-22	-22

8. CORRECTIVE FACTOR

8.1. HEATING CAPACITY AND INPUT POWER

- "HEAT PUMP VERSIONS IN HEATING MODE"

The heating capacity yielded and the input electrical capacity in conditions other than rated conditions are obtained by multiplying the rated values (Pt, Pa) by the respective correction coefficients (Ct, Ca).
Diagram (Tab. 8.1.1) allows you to obtain the correction coefficients; corresponding to each curve, the temperature of the hot processed water referred to is reported, assuming a difference in water temperature between the input and output of the condenser equal to 5°C/10°F.

KEY:

Ct = Heating capacity correction coefficient

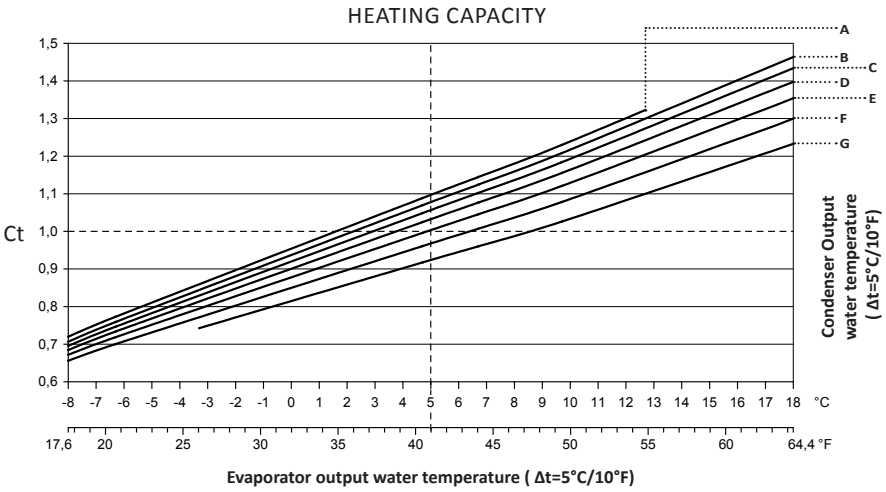
Ca = Input power correction coefficient

8.2. FOR ΔT DIFFERENT FROM THE RATED VALUE

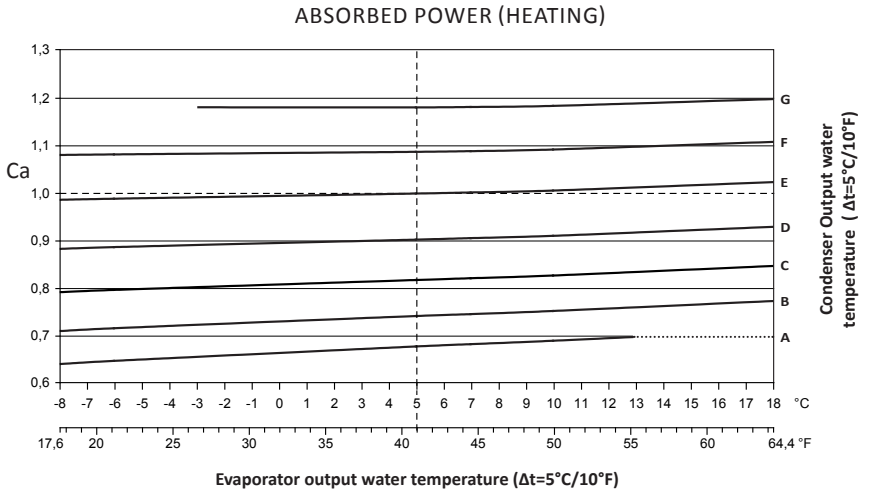
For Δt different from 5°C/10°F to the evaporator, refer to Tab.8.2.1 for the cooling capacity and input power correction factors.

8.3. FOULING FACTORS

The performance levels indicated in table 8.3.1 refer to conditions with clean tubes, with a fouling factor = 1. For values different from the fouling factor, multiply the values in the performance table by the reported coefficients.



		A	B	C	D	E	F	G
Condenser Output water temperature	°C	25	30	35	40	45	50	55
	°F	77	86	95	104	113	122	131



		A	B	C	D	E	F	G
Condenser Output water temperature	°C	25	30	35	40	45	50	55
	°F	77	86	95	104	113	122	131

fig. 8.1.1

8.2.1 CORRECTION FACTORS FOR ΔT DIFFERENT FROM THE CHILLER RATED VALUE

Evaporator Δt different to nominal (°C/°F)	**3/5**	**5/10**	**8/14**	**10/18**
Correction factor cooling capacity	0,99	1	1,02	1,03
Correction factor input power	0,99	1	1,01	1,02
Correction factor heating capacity	0,99	1	1,02	1,03
Condenser Δt different to nominal	**3/5**	**5/10**	**8/14**	**10/18**
Correction factor heating capacity	0.9912	1	1.013	1.0227
Correction factor input power	1.0144	1	0.978	0.9633

8.3.1 FOULING FACTOR

Fouling factor [K*m²]/[W]	0,00001	0,00002	0,00005
Correction factor cooling capacity	1	0,99	0,98
Correction factor input power	1	1	1
Correction factor heating capacity	1	1	0,99
Correction factor input power	1	1	1,02

8.4. COOLING CAPACITY AND INPUT POWER

- "HEATING PUMP IN COOLING OPERATION VERSIONS"

The refrigerating capacity yielded and the input electrical capacity in conditions other than rated conditions are obtained by multiplying the rated values (Pf, Pa) by the respective correction coefficients (Cf, Ca).
The diagram allows you to obtain the correction coefficients; corresponding to each curve, the temperature of the hot processed water referred to is reported, assuming a difference in water temperature between the input and output of the condenser equal to 5°C/10°F.

KEY:
Cf = Cooling capacity correction coefficient
Ca = Input power correction coefficient

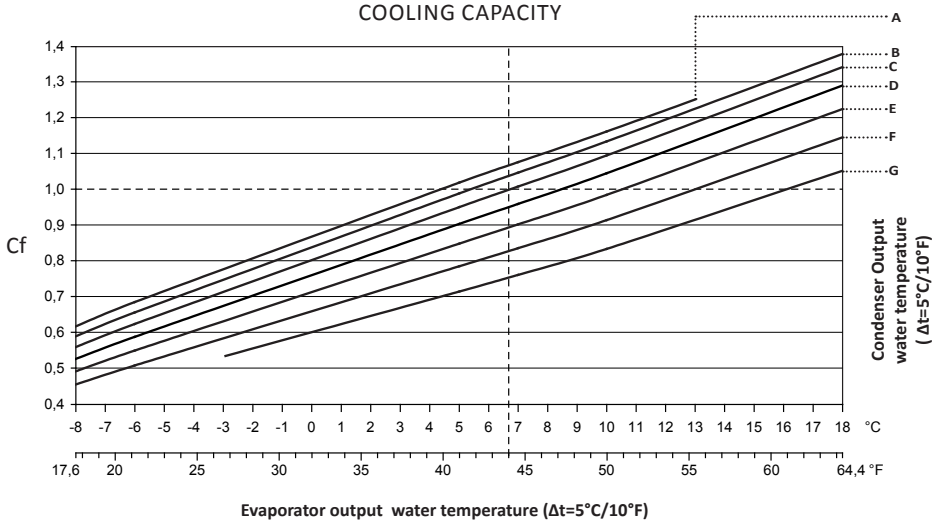
8.5. FOR ΔT DIFFERENT FROM THE RATED VALUE

For Δt different from 5°C to the evaporator, refer to Tab. 8.5.1 for the cooling capacity and input power correction factors.

8.6. FOULING FACTORS

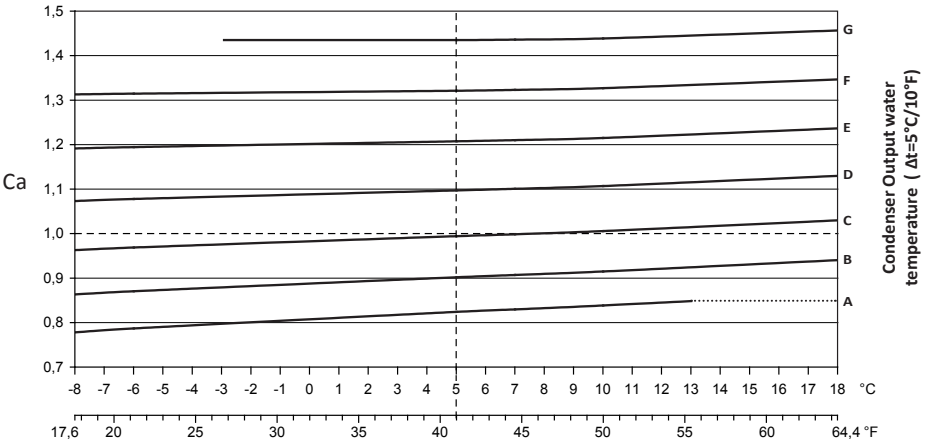
The performance levels indicated in table 8.6.1 refer to conditions with clean tubes, with a fouling factor = 1. For values different from the fouling factor, multiply the values in the performance table by the reported coefficients.

COOLING CAPACITY



		A	B	C	D	E	F	G
Condenser Output water temperature	°C	25	30	35	40	45	50	55
	°F	77	86	95	104	113	122	131

INPUT POWER IN COOLING MODE



		A	B	C	D	E	F	G
Condenser Output water temperature	°C	25	30	35	40	45	50	55
	°F	77	86	95	104	113	122	131

fig. 8.4.1

8.5.1 CORRECTION FACTORS FOR ΔT DIFFERENT FROM THE CHILLER RATED VALUE

Evaporator Δt different to nominal	**3**	**5**	**8**	**10**
Correction factor cooling capacity	0,99	1	1,02	1,03
Correction factor input power	0,99	1	1,01	1,02
Correction factor heating capacity	0,99	1	1,02	1,03
Condenser Δt different to nominal	**3**	**5**	**8**	**10**
Correction factor heating capacity	0.9912	1	1.013	1.0227
Correction factor input power	1.0144	1	0.978	0.9633

8.6.1 FOULING FACTOR

Fouling factor [K*m²]/[W]	0,00001	0,00002	0,00005
Correction factor cooling capacity	1	0,99	0,98
Correction factor input power	1	1	1
Correction factor heating capacity	1	1	0,99
Correction factor input power	1	1	1,02

8.7. HEATING CAPACITY WITH DESUPERHEATER

The heating capacity yielded in conditions other than rated conditions are obtained by multiplying the rated values (Pt, Pa) by the respective correction coefficients (Cd). Diagram (Tab. 8.10.1) allows you to obtain the correction coefficients; corresponding to each curve, the temperature of the hot processed water referred to is reported, assuming a difference in water temperature between the input and output of the condenser equal to 5°C/10°F.

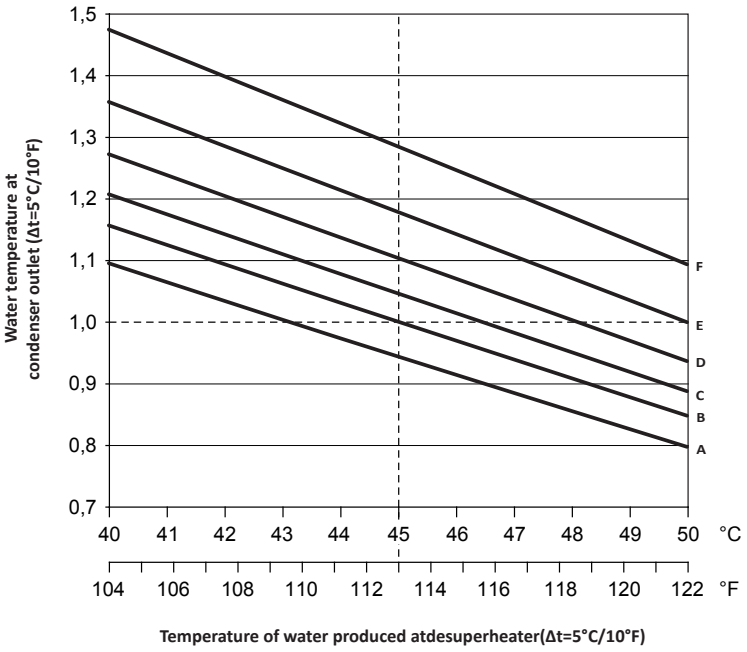
KEY:
Cd = Heating capacity correction coefficient

8.8. FOR ΔT DIFFERENT FROM THE RATED VALUE

For Δt different from 5°C/10°F to the evaporator, refer to Tab.8.11.1 for the cooling capacity and input power correction factors.

8.9. FOULING FACTORS

The performance levels indicated in table 8.12.1 refer to conditions with clean tubes, with a fouling factor = 1. For values different from the fouling factor, multiply the values in the performance table by the reported coefficients.



		A	B	C	D	E	F
Condenser Output water temperature	°C	25	30	35	40	50	55
	°F	77	86	95	104	122	131

fig. 8.10.1

8.11.1 CORRECTION FACTORS FOR ΔT DIFFERENT FROM THE CHILLER RATED VALUE

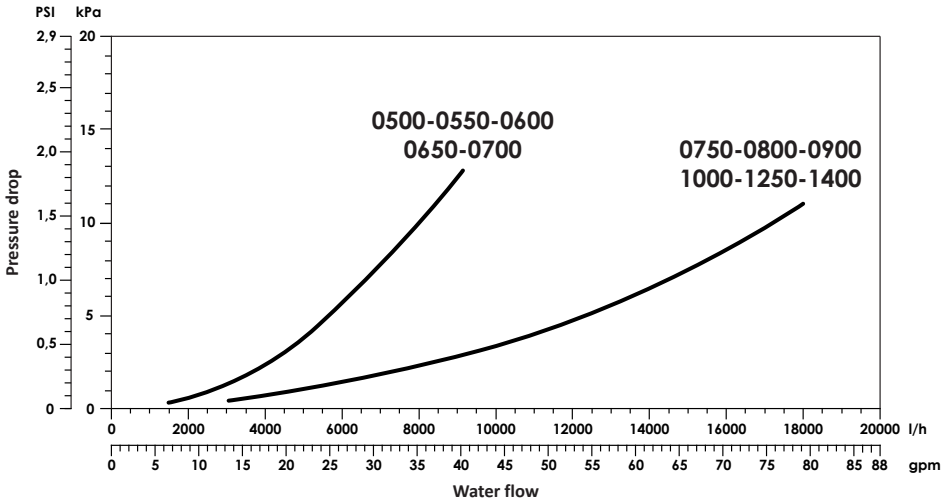
Evaporator Δt different to nominal	**3**	**5**	**8**	**10**
Correction factor cooling capacity	0,99	1	1,02	1,03
Correction factor input power	0,99	1	1,01	1,02
Correction factor heating capacity	0,99	1	1,02	1,03
Condenser Δt different to nominal	**3**	**5**	**8**	**10**
Correction factor heating capacity	0.9912	1	1.013	1.0227
Correction factor input power	1.0144	1	0.978	0.9633

8.12.1 FOULING FACTOR

Fouling factor [K*m²]/[W]	0,00001	0,00002	0,00005
Correction factor cooling capacity	1	0,99	0,98
Correction factor input power	1	1	1
Correction factor heating capacity	1	1	0,99
Correction factor input power	1	1	1,02

8.10. DESUPERHEATER PRESSURE DROPS

The pressure drops in the charts refer to an average water temperature of 50°C/122°F. The table(8.13.1) shows the corrections to apply to the pressure drops with a variation in average water temperature.



Average water temperature [°C/°F]	5/41	10/50	15/59	20/68	30/86	40/104	50/122
Correction factor	1,22	1,10	1,08	1,06	1,04	1,02	1,00

Tab 8.13.1

8.11. HEATING CAPACITY WITH TOTAL RECOVERY

The heating capacity yielded and the input electrical capacity in conditions other than rated conditions are obtained by multiplying the rated values (Pt, Pa) by the respective correction coefficients (Cr, Ca).
Diagram (Tab. 8.14.1) allows you to obtain the correction coefficients; corresponding to each curve, the temperature of the hot processed water referred to is reported, assuming a difference in water temperature between the input and output of the condenser equal to 5°C/10°F.

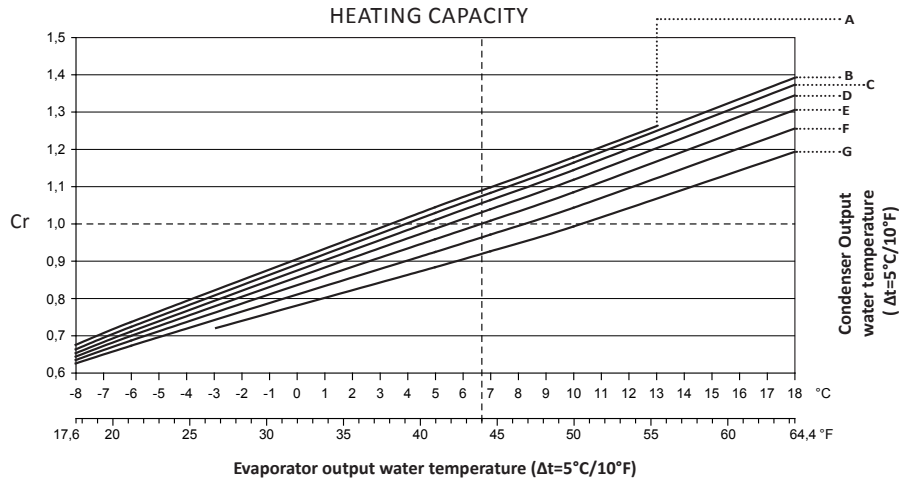
KEY:
Cr = Heating capacity correction coefficient
Ca = Input power correction coefficient

8.12. FOR ΔT DIFFERENT FROM THE RATED VALUE

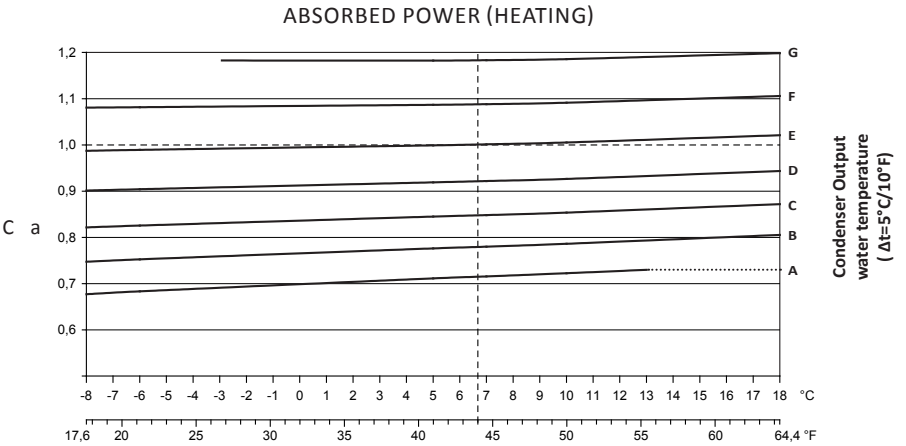
For Δt different from 5°C/10°F to the evaporator, refer to Tab.8.15.1 for the cooling capacity and input power correction factors.

8.13. FOULING FACTORS

The performance levels indicated in table 8.16.1 refer to conditions with clean tubes, with a fouling factor = 1. For values different from the fouling factor, multiply the values in the performance table by the reported coefficients.



		A	B	C	D	E	F	G
Condenser Output water temperature	°C	25	30	35	40	45	50	55
	°F	77	86	95	104	113	122	131



		A	B	C	D	E	F	G
Condenser Output water temperature	°C	25	30	35	40	45	50	55
	°F	77	86	95	104	113	122	131

fig. 8.14.1

8.15.1 CORRECTION FACTORS FOR ΔT DIFFERENT FROM THE CHILLER RATED VALUE

Evaporator Δt different to nominal (°C/°F)	**3/5**	**5/10**	**8/14**	**10/18**
Correction factor cooling capacity	0,99	1	1,02	1,03
Correction factor input power	0,99	1	1,01	1,02
Correction factor heating capacity	0,99	1	1,02	1,03
Condenser Δt different to nominal	**3/5**	**5/10**	**8/14**	**10/18**
Correction factor heating capacity	0.9912	1	1.013	1.0227
Correction factor input power	1.0144	1	0.978	0.9633

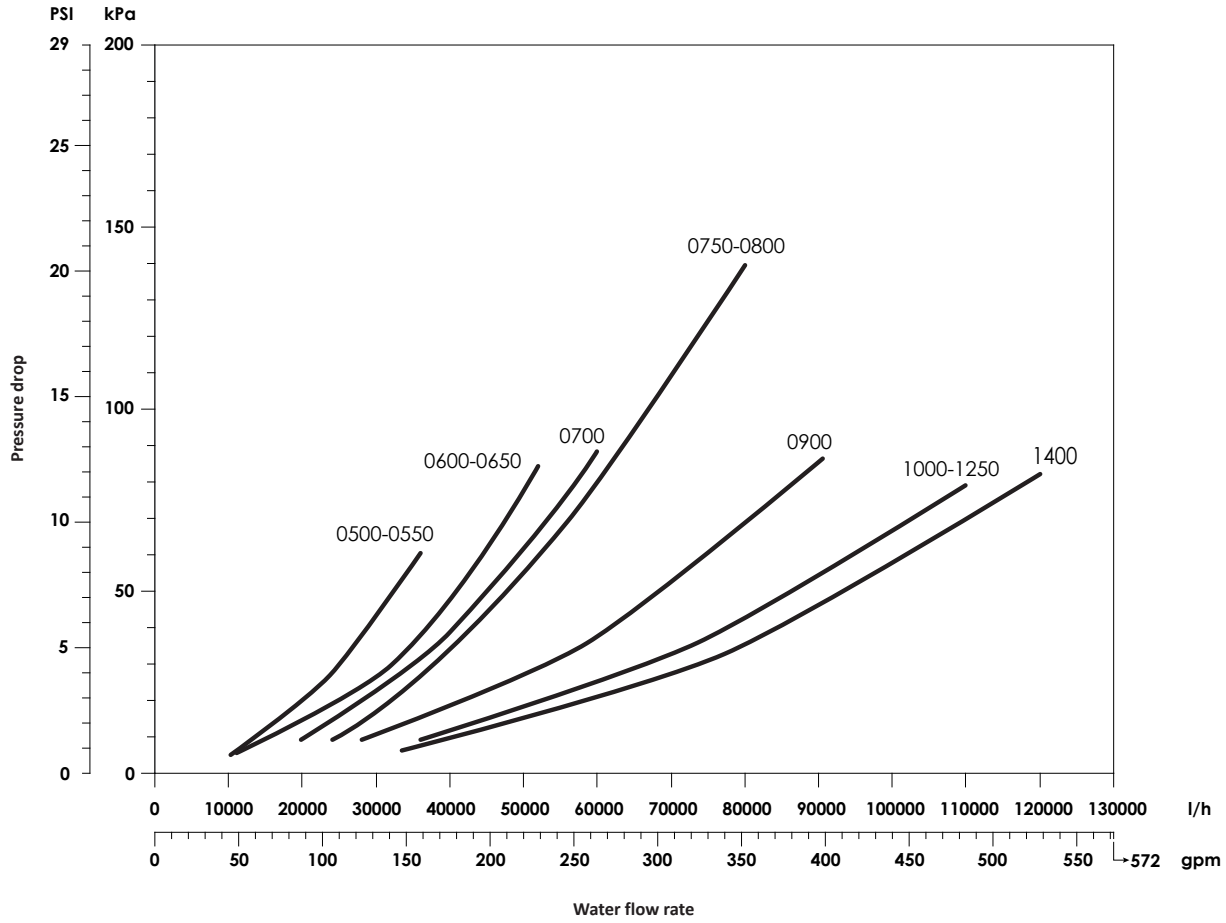
8.16.1 FOULING FACTOR

Fouling factor [K*m²]/[W]	0,00001	0,00002	0,00005
Correction factor cooling capacity	1	0,99	0,98
Correction factor input power	1	1	1
Correction factor heating capacity	1	1	0,99
Correction factor input power	1	1	1,02

8.14. PRESSURE DROPS TOTAL RECOVERY

The pressure drops in the charts refer to an average water temperature of 50 °C/122°F. The table (8.17.1) shows the corrections to apply to the pressure drops with a variation in average water temperature.

PRESSURE DROPS TOTAL RECOVERY



Average water temperature [°C/°F]	5/41	10/50	15/59	20/68	30/86	40/104	50/122
Correction factor	1,22	1,10	1,08	1,06	1,04	1,02	1,00

Tab 8.17.1

9. TOTAL PRESSURE DROPS

9.1. EVAPORATOR IN COOLING OPERATION

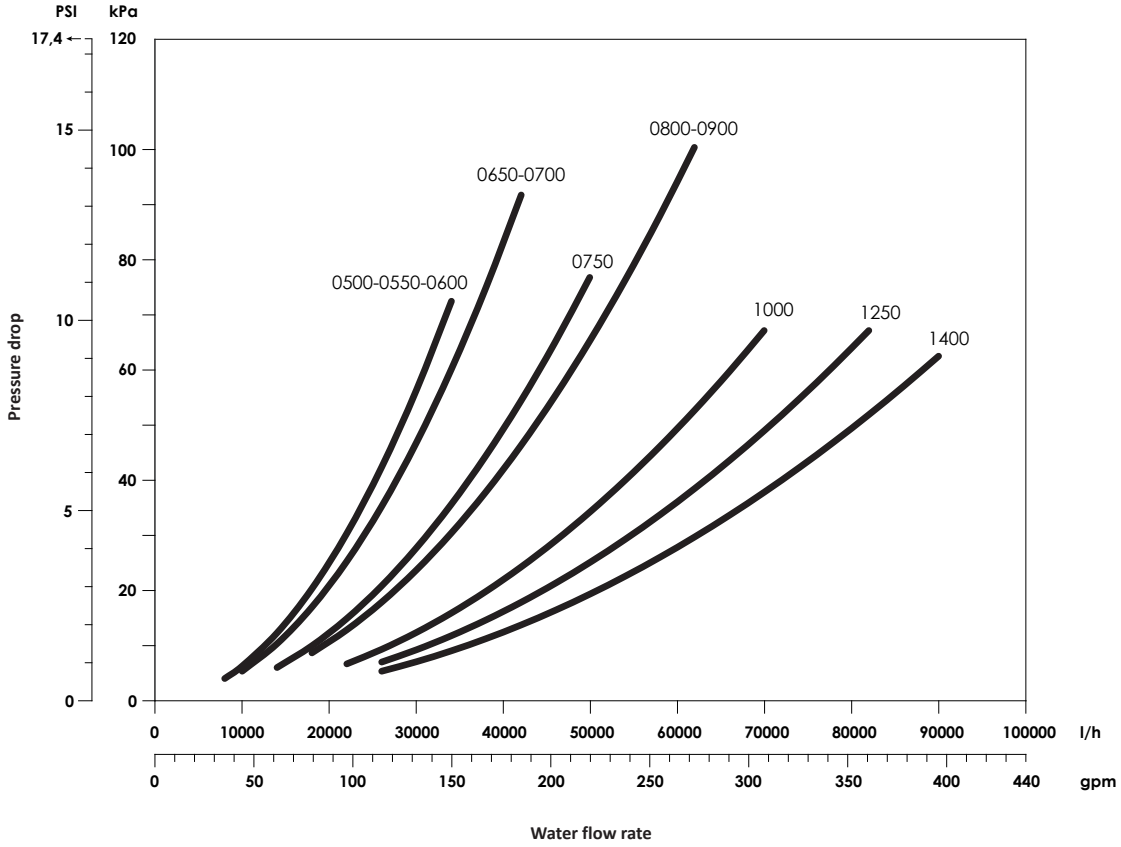
The diagram pressure drops are related to an average water temperature of 10 °C/50°F.

Water flow rate (l/h) MIN e MAX

NXW			
Model	**U.M.**	**Water flow rate MIN**	**Water flow rate MAX**
0500-0800	**gpm**	**34,9**	**245,7**
0900-1400	**gpm**	**74,5**	**531**

ATTENTION
- Lower water flow speed might get some substance deposited in the heat exchanger
- Higher water flow speed might cause mechanical damages)

EVAPORATOR PRESSURE DROPS VERSION °



The correction to apply to the pressure drops when the average water temperature varies

EVAPORATOR							
Average water temperature °C/°F	**5/41**	**10/50**	**15/59**	**20/68**	**30/86**	**40/104**	**50/122**
Correction factor	1,02	**1**	0,985	0,97	0,95	0,93	0,91

9.2. CONDENSER IN COOLING OPERATION

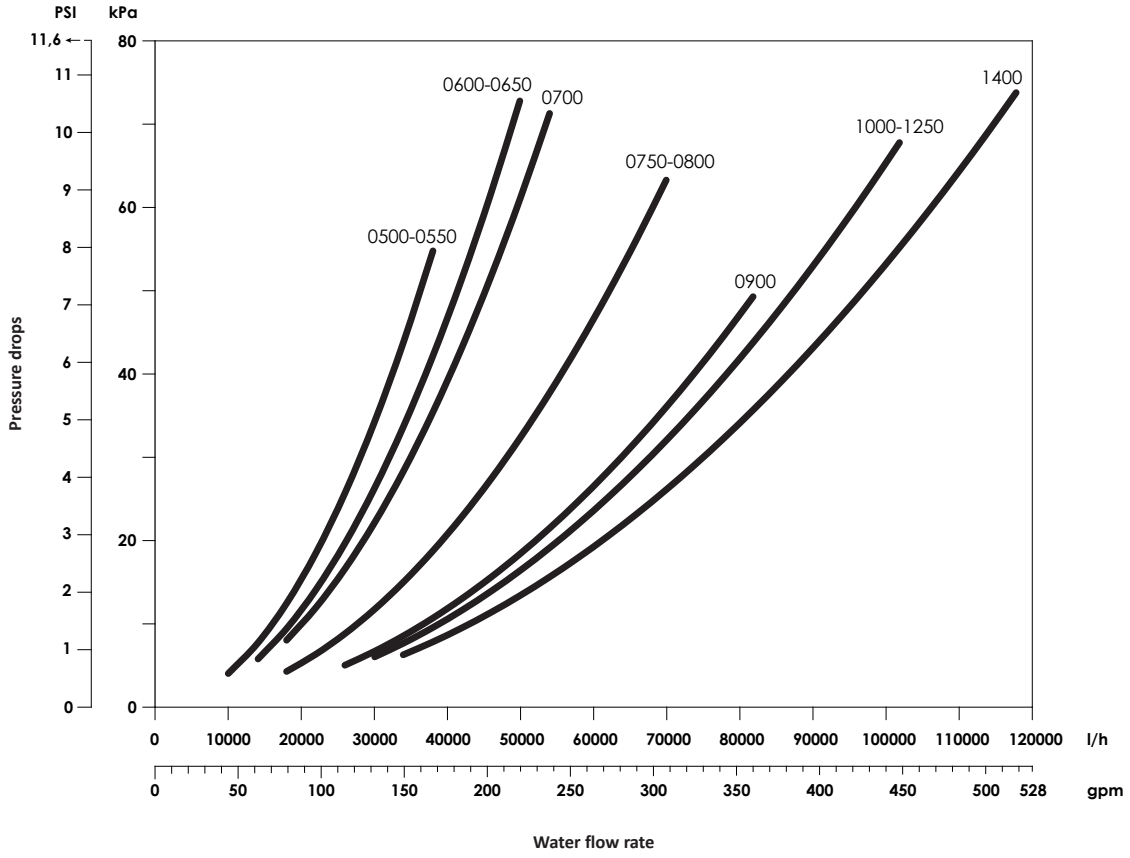
The diagram pressure drops are related to an average water temperature of 30 °C/86°F.

Water flow rate (l/h) MIN e MAX

NXW			
Model	**U.M.**	**Water flow rate MIN**	**Water flow rate MAX**
0500-0800	**gpm**	**34,9**	**245,7**
0900-1400	**gpm**	**74,5**	**531**

ATTENTION
- Lower water flow speed might get some substance deposited in the heat exchanger
- Higher water flow speed might cause mechanical damages)

CONDENSER PRESSURE DROPS VERSION H

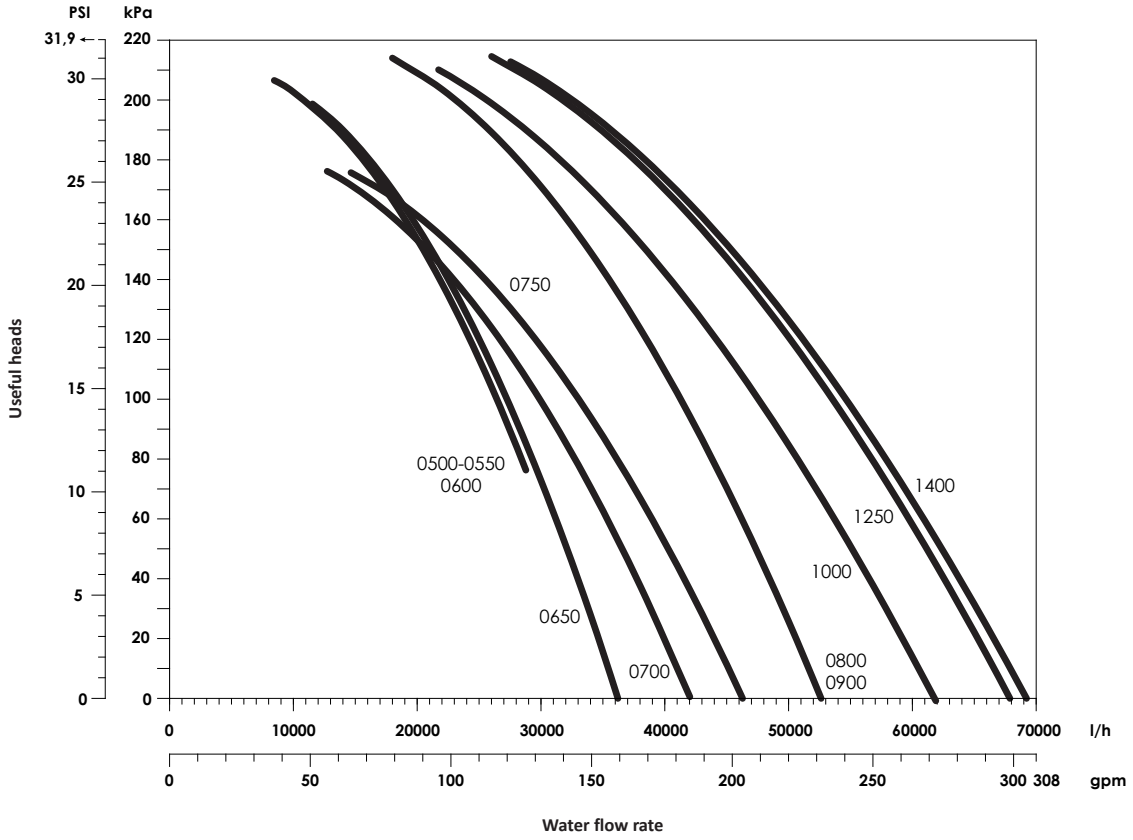


The correction to apply to the pressure drops when the average water temperature varies

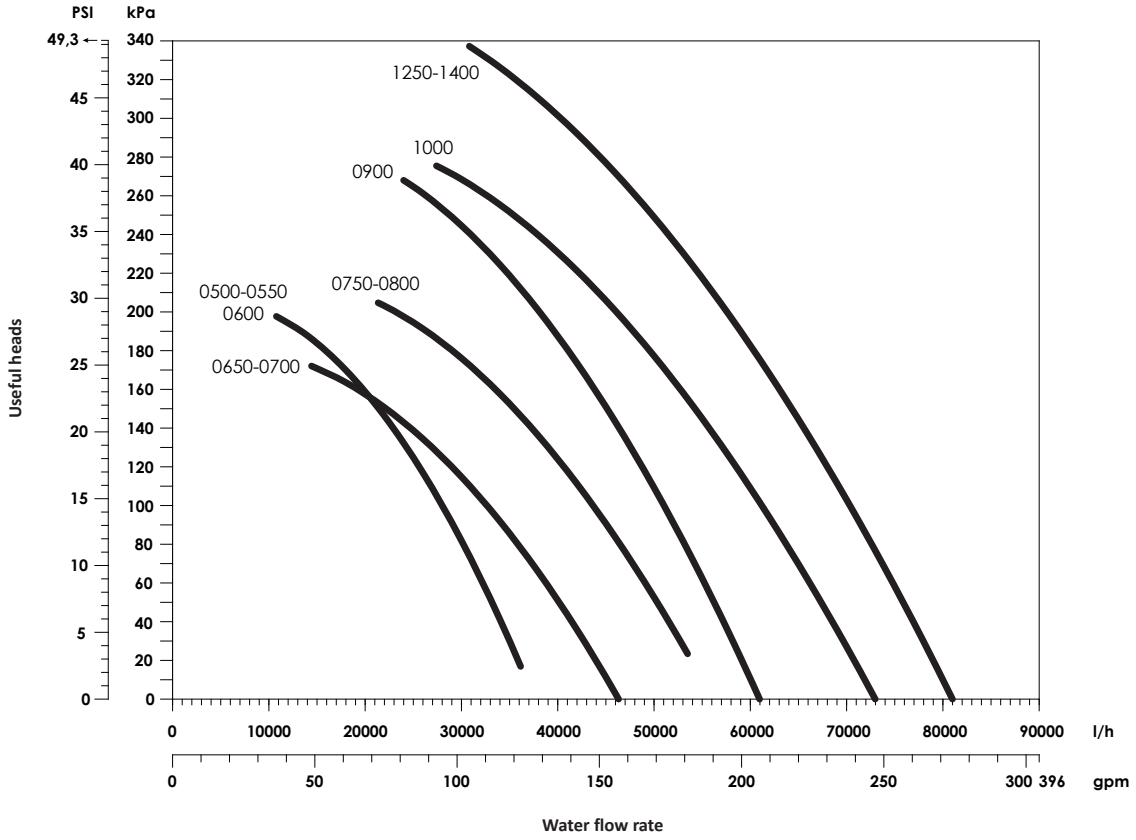
CONDENSER								
Average water temperature °C/°F	**23/73**	**28/82**	**33/91**	**38/100**	**43/109**	**48/118**	**53/127**	**58/136**
Correction factor	1,02	1,01	1,00	0,99	0,98	0,97	0,96	0,95

10. USEFUL HEADS

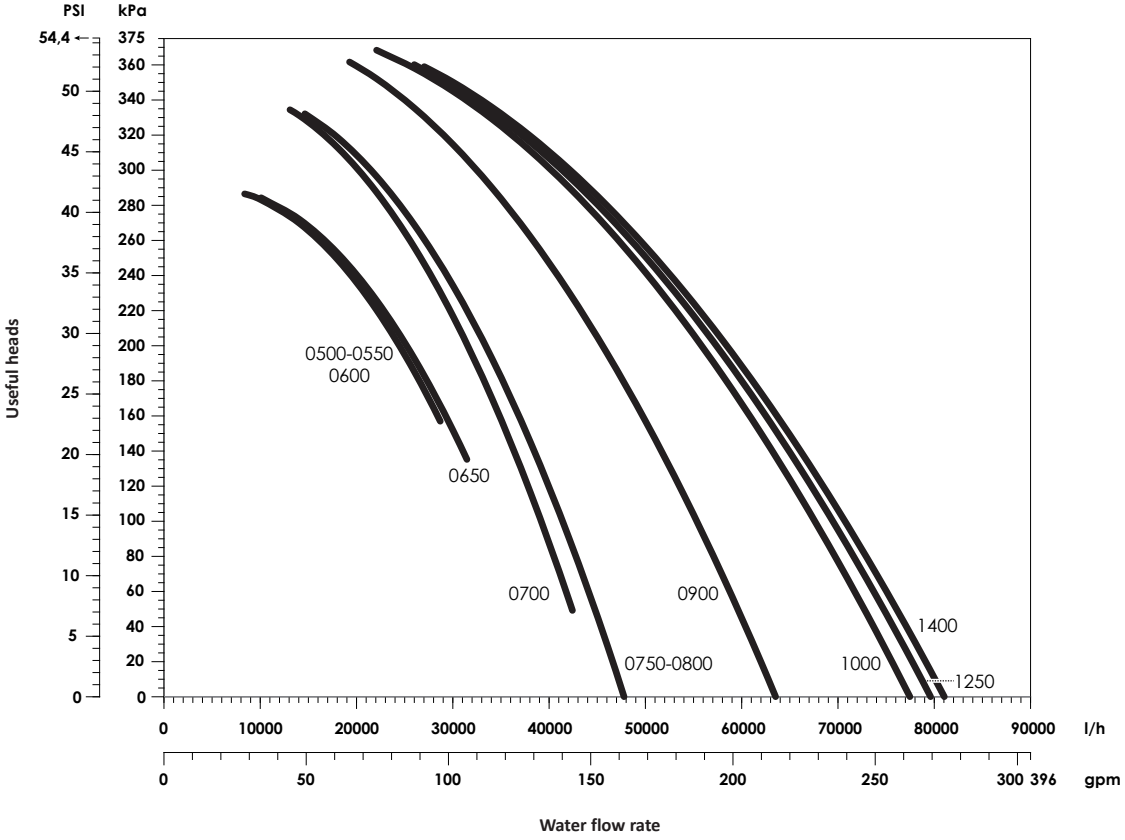
EVAPORATOR USEFUL HEAD LOW HEAD VERSION°



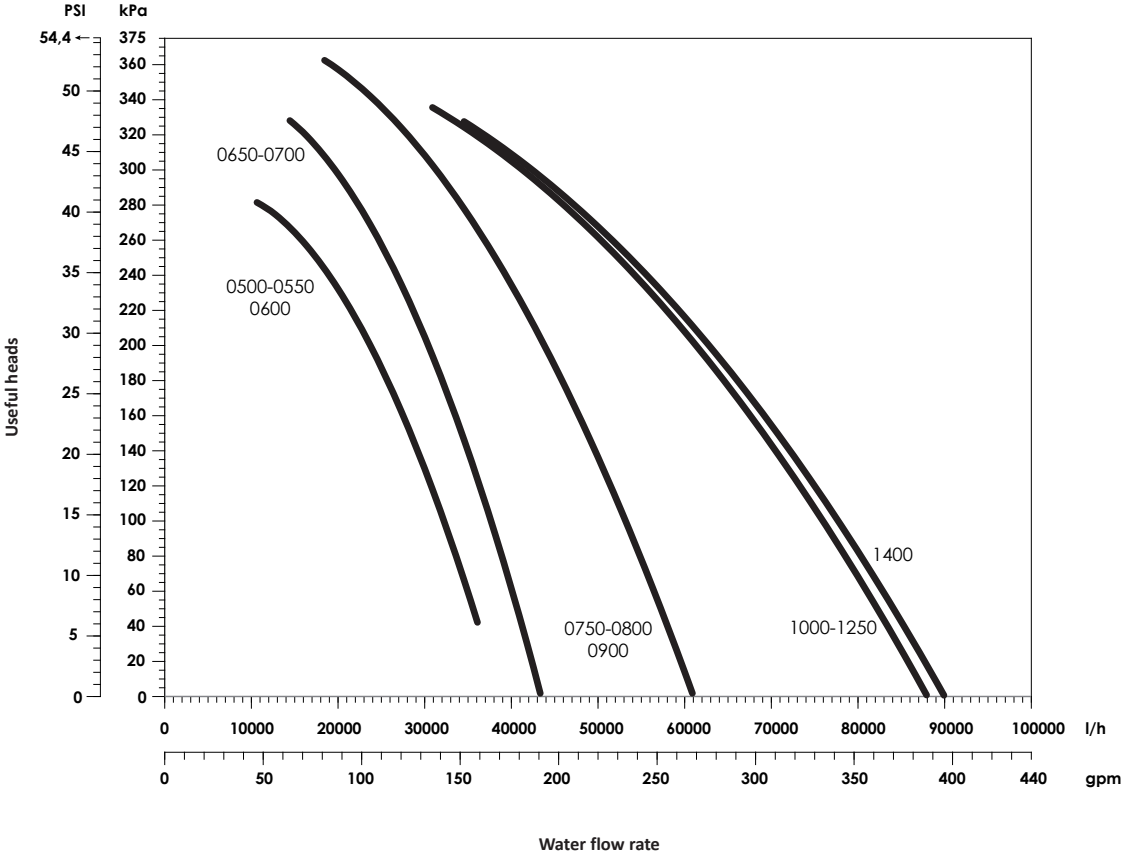
CONDENSER USEFUL HEAD LOW HEAD VERSION °, H, EVAPORATOR VERSION H



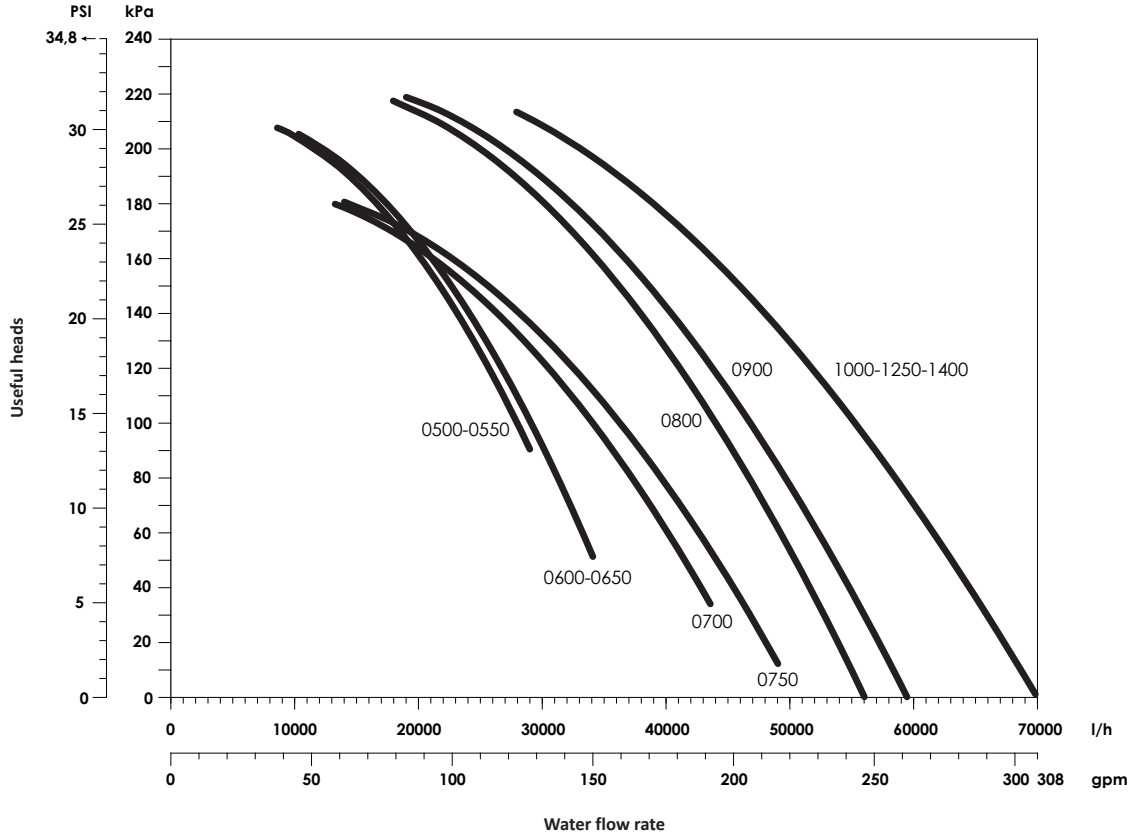
EVAPORATOR USEFUL HEAD HIGH HEAD VERSION°



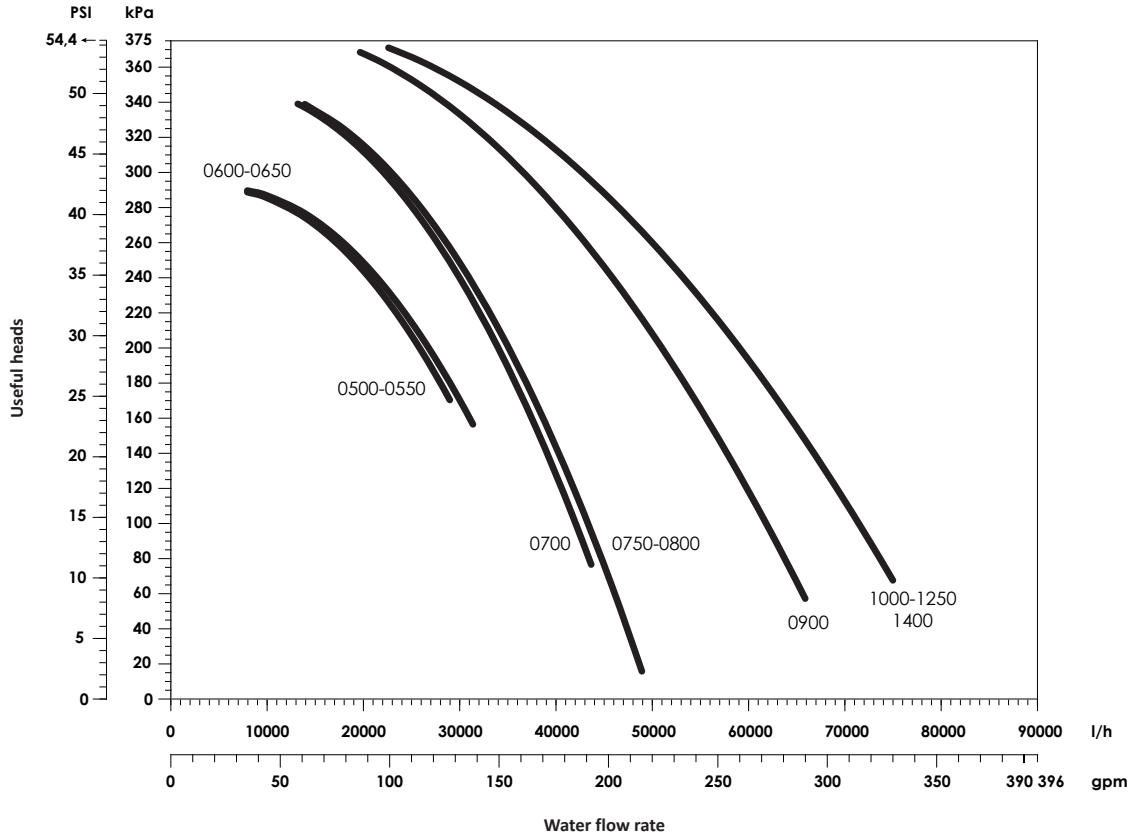
CONDENSER USEFUL HEAD HIGH HEAD VERSION °, H, EVAPORATOR VERSION H



EVAPORATOR USEFUL HEAD LOW HEAD VERSION H



EVAPORATOR USEFUL HEAD HIGH HEAD VERSION H



11. MINIMUM/MAXIMUM WATER CONTENT IN THE SYSTEM

Mod. NXW	vers	U.M.	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
WATER CONTENT IN THE SYSTEM	all	gal/ton(1)	1.321		1.057								
		gal/ton(2)	2.642		2.113								

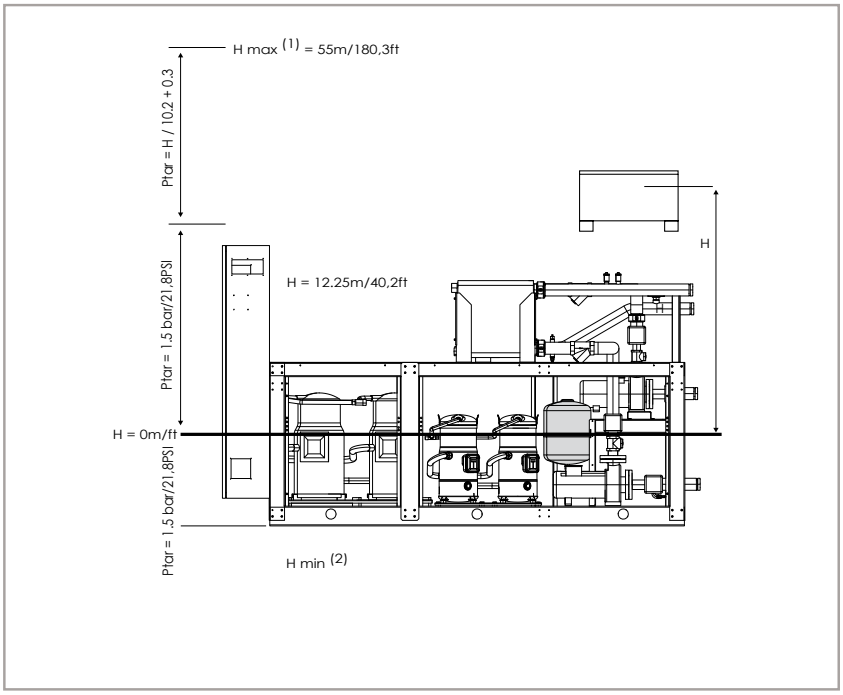
(1) Minimum water content
(2) Minimum water content in the case of process applications or applications with low load.

Δt Project data less than 5°C/10°F

12. EXPANSION TANK CALIBRATION

The standard pre-load pressure value of the expansion vessel is 1.5bar/21,8PSI, while their volume is 25l/6,6gal. The maximum value is 6bar/87PSI.
Vessel calibration must be regulated using the maximum level difference (H) of the user (see diagram) by using the following formula.
p (calibration) [bar] = H [m] / 10.2 + 0.3

For example: if level difference (H) is equal to 20m/65,6ft, the calibration value of the vessel will be 2.3bar/33,4PSI.
If the calibration value obtained from thecalculation is less than 1.5bar/21,8PSI (i.e. for H < 12.25), keep standard calibration.



KEY
(1) Check that highest installation does not exceed a height difference of 55m/180,3ft

(2) Ensure that lowest installation can withstand global pressure in that position

NXW						
Hydraulic height	**H ft**	**98,4**	**82**	**65,6**	**49,2**	**≥ 40,2**
Calibration of the expansion vessel	PSI	46,4	40,6	33,4	26,1	21,8
Water content reference value	gal (1)	574,3	699,0	823,7	948,4	1017,6
Water content reference value	gal (2)	258,4	314,4	370,9	426,9	457,5

ETHYLENE GLYCOL

COOLING MODE

CORRECTION FACTOR WITH ETHYLENE GLYCOL												
Freezing Point	°C	0	-4,9	-7,7	-10,6	-13,6	-16,9	-20,7	-25,2	-30,5	-36,7	-44,1
Percent ethylene glycol	%	0	10	15	20	25	30	35	40	45	50	55
Qwc	-	1,000	0,994	0,998	1,006	1,016	1,030	1,046	1,063	1,082	1,103	1,124
Pc	-	1,000	0,990	0,985	0,980	0,975	0,970	0,965	0,960	0,955	0,950	0,945
Pa	-	1,000	0,996	0,994	0,992	0,990	0,988	0,986	0,984	0,982	0,980	0,978
Dp	-	1,000	1,068	1,105	1,152	1,212	1,285	1,373	1,477	1,598	1,738	1,897

HEATING MODE

CORRECTION FACTOR WITH ETHYLENE GLYCOL												
Freezing Point	°C	0	-4,9	-7,7	-10,6	-13,6	-16,9	-20,7	-25,2	-30,5	-36,7	-44,1
Percent ethylene glycol	%	0	10	15	20	25	30	35	40	45	50	55
Qwh	-	1,000	1,011	1,019	1,030	1,044	1,061	1,079	1,099	1,120	1,143	1,165
Ph	-	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Pa	-	1,000	1,002	1,003	1,004	1,005	1,007	1,008	1,010	1,012	1,015	1,018
Dp	-	1,000	1,063	1,104	1,153	1,212	1,280	1,358	1,446	1,544	1,652	1,771

Qwc: Corrective factor of flow rates (middle water temperatur 9,5°C)
Qwh: Corrective factor of flow rates (middle water temperatur 42,5°C)
Pc: Corrective factor of cooling capacity
Ph: Corrective factor of heating capacity
Pa: Corrective factor of imput power
Dp: Corrective factor of pressure drop

PROPYLENIC GLYCOL

COOLING MODE

CORRECTION FACTOR WITH PROPYLENIC GLYCOL												
Freezing Point	°C	0	-3	-4,8	-7,2	-10,1	-13,5	-17,5	-22,1	-27,2	-32,9	-39,2
Percent propylenic glycol	%	0	10	15	20	25	30	35	40	45	50	55
Qwc	-	1,000	0,984	0,984	0,985	0,988	0,993	1,000	1,009	1,021	1,035	1,053
Pc	-	1,000	0,985	0,978	0,970	0,963	0,955	0,947	0,939	0,932	0,924	0,916
Pa	-	1,000	0,996	0,994	0,992	0,990	0,988	0,986	0,984	0,982	0,980	0,978
Dp	-	1,000	1,035	1,065	1,100	1,139	1,182	1,230	1,281	1,338	1,398	1,462

HEATING MODE

CORRECTION FACTOR WITH PROPYLENIC GLYCOL												
Freezing Point	°C	0	-3	-4,8	-7,2	-10,1	-13,5	-17,5	-22,1	-27,2	-32,9	-39,2
Percent propylenic glycol	%	0	10	15	20	25	30	35	40	45	50	55
Qwh	-	1,000	1,009	1,014	1,022	1,030	1,041	1,054	1,069	1,087	1,108	1,132
Ph	-	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Pa	-	1,000	1,003	1,004	1,005	1,007	1,009	1,011	1,014	1,018	1,023	1,029
Dp	-	1,000	1,021	1,049	1,079	1,110	1,143	1,179	1,216	1,256	1,298	1,343

Qwc: Corrective factor of flow rates (middle water temperatur 9,5°C)
Qwh: Corrective factor of flow rates (middle water temperatur 42,5°C)
Pc: Corrective factor of cooling capacity
Ph: Corrective factor of heating capacity
Pa: Corrective factor of imput power
Dp: Corrective factor of pressure drop

13. SOUND DATA

13.1. SOUND LEVELS

Sound power:
Aermec determines sound power values on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification.

Sound pressure:
Sound pressure in free field, at 10 m distance from the external surface of the unit (in accordance with UNI EN ISO 3744)

NXW [L/HL]	Power dB(A)	Pressure dB(A)		Sound power by central band frequency [dB] (A)						
		32,8ft	3,3ft	125	250	500	1000	2000	4000	8000
0500L	79	47	62	55,3	60,2	74,2	76,3	67,5	62,3	46,1
0550L	78	46	61	54,6	58,8	73,0	75,6	66,5	61,2	45,1
0600L	79	47	62	55,5	59,7	73,9	76,5	67,4	62,1	46,0
0650L	79	47	62	54,8	59,7	73,8	76,6	67,1	61,6	44,9
0700L	80	48	63	55,3	60,2	74,3	77,1	69,6	62,1	45,4
0750L	80	48	63	56,0	61,0	74,9	77,6	68,0	62,5	45,9
0800L	82	50	65	58,7	63,6	77,0	79,7	69,4	64,3	48,0
0900L	85	53	68	61,9	66,8	80,2	82,9	72,6	67,5	51,2
1000L	87	55	70	63,7	68,6	82,0	84,7	74,4	69,3	53,0
1250L	89	57	72	65,5	70,4	83,8	86,5	76,2	71,1	54,8
1400L	90	58	73	66,7	71,6	85,0	87,7	77,4	72,3	56,0

NXW 0500-0800 version with pumps (High head) add 4dB(A)
NXW 0900-1400 version with pumps (High head) add 2dB(A)

Reference data (AHRI standard) in cooling operation:
Evaporator:
Water outlet temperature..... 6,7°C - 44°F
Water flow..... 0,043l/s per kW - 2,4gpm/ton
Condenser:
Water inlet temperature ..... 29,4°C - 85°F
Water flow..... 0,054l/s per kW - 3gmp/ton

14. SAFETY AND CHECK PARAMETER SETTING

CHECK PARAMETERS			
Cooling set	Water inlet temperature in cooling mode	**MIN.**	4°C
		MAX.	15°C
		DEFAULT	7.0°C
Heating setting	Water inlet temperature in heating mode	**MIN.**	30°C
		MAX.	50°C
		DEFAULT	50°C
Antifreeze intervention	Antifreeze alarm intervention temperature on EV side (water output temperature).	**MIN.**	-9°C
		MAX.	4°C
		DEFAULT	3°C
Total differential	Proportional temperature band within which the compressors are activated and deactivated	**MIN.**	3°C
		MAX.	10°C
		DEFAULT	5°C
Autostart	Auto		

COMPRESSOR THERMOMAGNETIC	NXW	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
Power supply: 230V~60Hz												
MTC1 (CP1 / CP1A)	A	68	41 / 41	41 / 41	41 / 41	41 / 63	63 / 63	68 / 68	---	---	---	---
MTC2 (CP2 / CP2A)	A	68	63	68	41 / 41	41 / 63	63 / 63	68 / 68	---	---	---	---
Power supply: 460V~60Hz												
MTC1 (CP1 / CP1A)	A	32	22 / 22	22 / 22	22 / 22	22 / 28	28 / 28	32 / 32	37 / 37	37 / 37	37 / 51	51 / 51
MTC2 (CP2 / CP2A)	A	32	28	32	22 / 22	22 / 28	28 / 28	32 / 32	32 / 32	37 / 37	37 / 51	51 / 51
Power supply: 575V~60Hz												
MTC1 (CP1 / CP1A)	A	29	16 / 16	16 / 16	16 / 16	16 / 24	24 / 24	29 / 29	30 / 30	30 / 30	30 / 43	43 / 43
MTC2 (CP2 / CP2A)	A	29	24	29	16 / 16	16 / 24	24 / 24	29 / 29	29 / 29	30 / 30	30 / 43	43 / 43

TRANSDUCERS AND PRESSURE SWITCHES (manual reset)	NXW	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
Pressure switch high press. (HP)	PSI	580,2	580,2	580,2	580,2	580,2	580,2	580,2	580,2	580,2	580,2	580,2
High pressure transducer (THP)	PSI	565,6	565,6	565,6	565,6	565,6	565,6	565,6	565,6	565,6	565,6	565,6
Low pressure transducer (TLP)	PSI	23,2	23,2	23,2	23,2	23,2	23,2	23,2	23,2	23,2	23,2	23,2

COOLING CIRCUIT SAFETY	NXW	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
High-pressure valve	PSI	652,7	652,7	652,7	652,7	652,7	652,7	652,7	652,7	652,7	652,7	652,7

15. CAPACITY CONTROL

Capacity step control (cold)

* Cooling capacity %	Levels of power			
Versions	**1°**	**2°**	**3°**	**4°**
NXW0500	52	100	-	-
NXW0550	36	77	100	-
NXW0600	33	79	100	-
NXW0650	29	55	79	100
NXW0700	26	49	79	100
NXW0750	29	55	79	100
NXW0800	29	55	79	100
NXW0900	25	55	82	100
NXW1000	29	56	79	100
NXW1250	26	49	76	100
NXW1400	29	55	79	100

* Input power %	Levels of power			
Versions	**1°**	**2°**	**3°**	**4°**
NXW0500	49	100	-	-
NXW0550	28	66	100	-
NXW0600	26	68	100	-
NXW0650	23	47	73	100
NXW0700	20	42	70	100
NXW0750	24	48	73	100
NXW0800	23	47	73	100
NXW0900	20	48	77	100
NXW1000	24	48	74	100
NXW1250	21	43	71	100
NXW1400	24	48	74	100

Performance values refer to the following conditions:
* Evaporator inlet water temperature = 6,7°C/44°F
  condenser inlet water temperature = 34,7°C/95°F

Capacity step control (hot)

* Heating capacity %	Levels of power			
Versions	**1°**	**2°**	**3°**	**4°**
NXW0500	51	100	-	-
NXW0550	34	74	100	-
NXW0600	31	76	100	-
NXW0650	27	53	77	100
NXW0700	24	47	74	100
NXW0750	27	53	77	100
NXW0800	27	53	77	100
NXW0900	24	53	80	100
NXW1000	28	53	77	100
NXW1250	24	47	74	100
NXW1400	27	53	77	100

* Input power %	Levels of power			
Versions	**1°**	**2°**	**3°**	**4°**
NXW0500	49	100	-	-
NXW0550	28	65	100	-
NXW0600	26	68	100	-
NXW0650	23	47	73	100
NXW0700	20	42	70	100
NXW0750	23	47	73	100
NXW0800	23	48	73	100
NXW0900	20	48	77	100
NXW1000	23	48	73	100
NXW1250	21	42	70	100
NXW1400	23	48	73	100

Performance values refer to the following conditions:
** Evaporator inlet water temperature = 5°C/41°F;
condenser inlet water temperature = 45°C/113°F;

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